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ORIGINAL ARTICLES.

NEPHRECTOMY, WITH REPORT OF A CASE.[1]

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TOTAL extirpation of the kidney is an operation not frequently resorted to. Up to 1892 less than 350 cases had been reported. Since that date less than 50 additional ones have been recorded. About 15 of this number have been done in America.

The first nephrectomy, according to Smith's report, was performed in this country, at Milwaukee, in 1860. Walcott was the operator, and he supposed he was operating on an hepatic cyst. His patient lived fifteen days.

Simon, of Heidelberg, was the first surgeon to perform a systematic nephrectomy. This was in 1869, and since that date the operation has been undertaken by surgeons throughout the civilized world, with varying success. Twenty-five years of study and effort have not divested this operation of its formidable character; and the lowering of the mortality-reports has been largely the work of the last five years.

The indications demanding nephrectomy may be briefly summarized:

1. As a *dernier ressort* when nephrotomy fails.
2. When degeneration supervenes in a neglected movable kidney.
3. Intractable renal fistula after nephrotomy, or from any cause.
4. Tuberculous, suppurative, or cystic degeneration.
5. Destructive nephrolithiasis.
6. Traumatism causing rupture, hemorrhage, cloudy swelling, and acute suppurative degeneration.
7. Neoplasms.

Nephrotomy should often precede nephrectomy as a conservative measure. The patient is thus given an opportunity to rally and gain a resisting-power for the more formidable operation. Nephrotomy should be considered also in cases in which it is possible and practicable to save a sound portion of a partially degenerated kidney.

In cases of neglected movable kidney in which extensive degeneration, whether as hydronephrosis or pyonephrosis, has taken place, the kidney should be extirpated. In a very limited number of cases the condition may be relieved by nephrorrhaphy. But most of the cases met with are of such long standing that destruction has progressed beyond repair.

When a renal or urinary fistula has proved beyond possibility of closure, and the irritation from constantly dribbling and decomposing urine jeopardizes life, or makes it unbearable to the patient from an esthetic standpoint, nephrectomy offers an effectual and reasonably safe remedy. The extirpation of the kidney under such circumstances should be undertaken only after every other possible effort and operative device has been resorted to to close the sinus.

Tuberculous degeneration of the renal substance is a positive indication for total extirpation. Whether this degenerative change has been extensive or limited does not signify. The only point to determine in such an issue is whether the constitutional resistance of a patient, often already greatly reduced in physical tone, will prove sufficient to endure the shock of the operation.

Recent statistics of tuberculous kidney show nephrectomy to have been fatal in only about 36 per cent. of the cases. This is a somewhat lower death-rate than applies to simple pyonephrosis, of which the mortality ranges from 35 to 40 per cent.

If suppurative change has existed for a period of a year and a half or two years, the chances are strong that the entire renal parenchyma is destroyed. This destruction will be hastened when the exciting cause is a small calculus in the pelvis, just large enough to act as a valve over the ureter, causing backward pressure of pent-up urine, or when it is the excitant of constant traumatism of the neighboring calyces.

Stone in the kidney is not in itself a sufficient indication for total extirpation. If the calculus be small, whether single or multiple, there will always be imminent the danger of engagement in the ureteral expansion, and occlusion of the duct. Yet the hope of resolution by means of proper solvents mitigates the formidable features of such a case. This hope has no foundation in a case of larger calculus

[1] Read before the Colorado State Medical Society at Denver, June 20, 1894.

when the stone lies in or near the calyx, or loosely in the pelvis. Sooner or later the irritation and obstruction will cause cloudy swelling, inflammation, and suppuration, with degeneration of the pyramids, thinning of the cortex, and progressive destruction of the parenchyma. The longer a stone of such character is allowed to remain without surgical interference, the more remote grow the possibilities of relief by nephrotomy and the more certain the necessity of nephrectomy.

Instances of traumatism causing rupture, extravasation, or acute suppurative change, while not of common occurrence, have been met with sufficiently often to merit a place in the category of indications for nephrectomy. The virulence of the pyogenic bacteria in acute septic cases upon tissues illy immune to their toxic products renders nephrectomy more formidable than in the chronically septic cases.

Primary new-growths common to the kidney, which call for total extirpation, are usually sarcoma and carcinoma. Sarcoma is found the more frequently. Rhabdomyoma and adenoma are less commonly found. In malignant involvement here, as in other tissues, the merit of operative interference is measured by the extent of infiltration. The diagnosis and the extirpation must be made early, or the hazard is without avail.

The high mortality of nephrectomy has long been well recognized, and has for years placed the operation in the category of the most formidable of operative procedures. Statistics have been collected with great care by the best of men, but up to a half-decade ago the mortality, as given by Billroth, Gross, Harris, Weir, and Baum, ranged from 44.6 to 50 per cent. Later tabulations have shown a considerable decrease in the mortality. At present it may be said that the mortality of total extirpation will, in the hands of different operators, range from 36 to 40 per cent. Variations from this percentage will arise from difference in disease, in resisting-power of the patient, and surgical technique.

Nephrectomy is usually a long-delayed operation, undertaken only after every other measure has been tried. The task of one kidney doing the work of two has usually been assumed by Nature some time before the operation of extirpation has been determined upon. The danger in too long delay in these cases is one that should always be borne in mind. Statistics will make a great gain on the favorable side when this fact is thoroughly appreciated and acted upon.

The *diagnosis* of a condition demanding nephrectomy is frequently of less difficulty than the determination of the integrity of the other kidney. The exploratory incision, while easy of resort, is not always expedient. This is so well appreciated that a multiplicity of devices for compression, exploration, or catheterization of the ureter have been devised. Some of these have merit, and, in the hands of patient and dextrous operators, prove reliable. Most of the devices invented, however, are obsolete. Polk's clamp, or the ureteral catheter with illumination of the bladder, has more nearly approached the ideal aid to diagnosis. The exploratory incision always remains as an honorable and justifiable procedure in desperate cases, when all else has failed.

If tuberculosis be suspected, examination of the pus or caseous particles for the tubercle-bacillus will prove an important aid to the differentiation between simple and tuberculous pyonephrosis. Portions of the deposit should be taken up with a pipet and spread between the planes of two small slabs of plate glass, in order to discover the caseous material; for it is in this that the bacilli are found in greatest numbers. Very rarely is the bacillus found free in the urine, even in the most unmistakable and advanced cases of genito-urinary tuberculosis. When the caseous material is found, it may be spread, stained and mounted in the usual way.

The determination of the presence of a calculus is more difficult. If its weight be from fifteen to forty grains, less pain will be caused than when the concretion is smaller. The increase and decrease in the amount of sediment in the urine at irregular intervals points to stone. It will be observed that at the same time there will occur, conversely, an increase and decrease in the size of the tumor and tenderness on pressure. The explanation of these phenomena is too palpable to call for more than mere mention.

In case of calculous pyonephrosis, the presence of blood in the purulent sediment will be more common than in case of tuberculous destruction. In the latter condition the blood appears earlier in the disease, and is not the periodic concomitant observed in the exacerbations of the calculous variety. In this the hemorrhage is largely the result of traumatism and irritation of the pelvis and pyramids by the loose calculus.

Pain is a symptom of little value differentially. Three or four conditions of the kidney may produce pain of essentially similar character and degree.

The general constitutional dyscrasia of the patient, whether tuberculous or rheumatic, may lend aid to the other and more exact methods of differentiation.

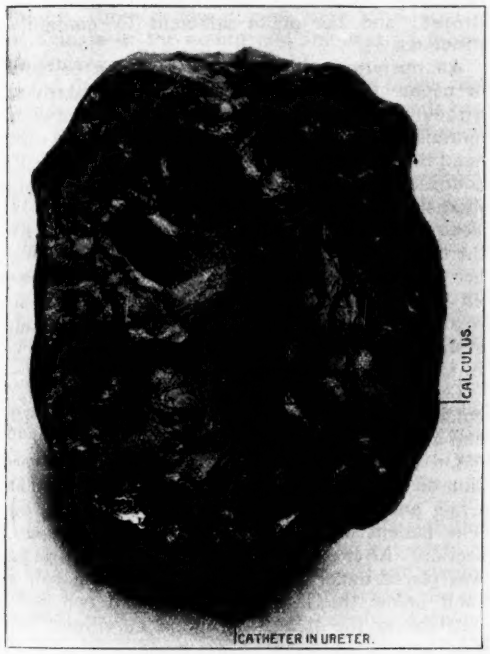
I have purposely omitted comparative estimations of urea, as these are of no value from a differential standpoint.

As to the *operation* of lumbar nephrectomy, the details carried out in the case described later will suffice for this paper.

When, from the character or location of the

tumor it becomes necessary to perform abdominal nephrectomy, the operation need depart very little from the technique of the removal of any other tumor from the abdominal cavity, unless the operator prefers the more modern incision of Langenbuch through the linea semilunaris.

Some care will need to be exercised in passing through the peritoneal covering of the tumor, making the opening through the mesocolon externally between the colon and the parietes; for division and ligation of the vessels in the inner layer may be followed by intestinal gangrene. The treatment of the vessels and ureteral stumps is essentially similar to that adopted in lumbar nephrectomy, namely, to drop them into the wound if healthy. If the ureter be suppurative, caseous, or calcareous, it is best treated by stitching its extremity into the lips of a counter-incision made above the crest of the ilium, after the method described by Morris.



REPORT OF A CASE. On March 1, 1894, the patient whose case is here reported consulted me at my office concerning a vesical and renal difficulty of three or four years' standing, which was attended with pain on micturition and a large deposit in the urine. She also complained of pain along the right ureteral tract and in the lumbar, right umbilical, and lower hypochondriac regions. She was furnished a sterilized bottle, which was returned on March 2d containing the urine for the preceding twenty-four hours.

The precipitate from 200 cc. in a two-inch cylinder was seven-eighths of an inch in depth. Following is the analysis.

Physical and chemic characteristics:

Quantity for twenty-four hours, 1150 cc. Color (supernatant), reddish-brown. Odor, fetid. Reaction, slightly acid. Sp. gr., 1028. Deposit, quantity and general appearance—large quantity, pinkish-yellow, sanguino-purulent. Urates, none. Phosphates, none.

Albumin, 33 per cent. per volume. Sugar, none.

Microscopic examination:

Bacteria: Staphylococcus pyogenes (abundant).
Streptococcus pyogenes (abundant).
Micrococcus ureæ (scant).

Pus, abundant, deposit largely pus. Casts, none. Blood, considerable amount. Epithelium, abundant. Crystals, none.

I examined the pus and flocculent particles for the bacillus tuberculosis, with negative results.

An appointment was made with the patient for a physical examination on March 4th. At 4 P.M. on that date the following history and conditions were elicited:

Mrs. J. H. A.; was thirty-two years old, married six and a half years, and gave a good family history. There were no cases of renal or calculous disease in any branch of the family. The woman had borne four children; the first five years before, the youngest was ten months old. The patient had a miscarriage in the sixth week of gestation, two and a half years before. Eight months later, while in the mountains, she had an attack of acute lobar

pneumonia, involving the lower lobe of the left lung. This confined her to bed eleven days, and her convalescence was tedious and protracted. She had had a slight cough from this time, mostly at night, which had been accentuated since the birth of her last child, and she now coughed during the day as well. She had never had a cough before the attack of pneumonia. She first noticed the deposit in her urine four years ago. It was not constant, nor was there a competent analysis made to determine its character. There would be periods when this deposit would abate and apparently disappear; but it would recur from time to time, and for a year and a half had maintained a constant and somewhat increasing quantity.

She now suffered from pain in the upper right lumbar region, extending into the right umbilical region, along the right ureter and at the neck of the bladder; experienced great lassitude and had lost ambition and spirit. Her appetite was only fair, and at times she had chilly sensations, which pointed to sepsis. She nursed her ten-months-old baby and endeavored to look after the duties of her household. She said that she was growing weaker day by day. She had the appearance of a tuberculous subject, with a pale, poorly nourished, darkly veined, transparent integument, prominent eyes, pinched and anxious physiognomy and frail movement. Her weight three years ago, and before the miscarriage and pneumonia, was 150 pounds; she now weighed 108 pounds, and her temperature, at 4 P.M. was 99.1°; her pulse 76; her respiration 22.

Examination of the lungs revealed pleuritic adhesions at the base and throughout the lower lobe of the left lung, with some dulness posteriorly. The fremitus was increased at the apex of the right lung and at the outer angle of the apex of the left lung. No râles or distinguishable areas of consolidation were detected elsewhere. The respiratory action was feeble; the expansion symmetrical, but limited. The stomach, spleen, and liver were apparently normal. At the junction of the right hypochondriac with the right umbilical region, between the linea alba and the right axillary line, was a firm tumor about four inches in diameter, that was so tender on pressure that the patient bore manipulation with difficulty. In the dorsal decubitus the tumor slipped away into the lumbar-hypochondriac region. Its prominence, however, was only apparent ventrally. Dorsally the quadratus prevented gravitation and protrusion of the mass.

In the erect posture the tumor became markedly prominent and gravitated downward and inward, so that its lower pole was three-fourths of an inch below the umbilical line. On bimanual manipulation it was evident that the tumor-mass was not as mobile as would appear from a cursory view, the contraction and relaxation of the abdominal wall and movement of the neighboring viscera causing the deception. Following downward, and making firm pressure along the right ureteral tract, elicited great tenderness all along the duct. This tenderness was not localized, but evenly distributed. Examination of the left renal and ureteral region in a similar manner revealed no tenderness, tumor, displacement, or other abnormality.

Examination *per vaginam* and bimanually showed the uterus to be small, high up, with neither version, flexion, nor laceration. The urethra and the neck and *bas fond* of the bladder were tender on pressure; the right ovary low and sensitive, and the tube somewhat thickened. The left ovary and tube were normal. Examination *per rectum* and bimanually showed the right ureter, from its emergence in the bladder to the brim of the pelvis, excessively tender. This tenderness was almost as marked as over the tumor itself. On the left side the firmest pressure and manipulation revealed no tenderness or discomfort.

Diagnosis. Right pyonephrosis, either calculous or tuberculous, with an intercurrent cystitis; the medullary portion of the kidney probably destroyed, and the organ adherent to contiguous structures.

An operation, either nephrotomy as a palliative or nephrectomy as a radical measure, was advised without delay. The patient was made aware of the mortality attending nephrectomy, and on the other hand the jeopardy to life if not relieved of her septic condition. She asked for a few days to determine what she should do. Meantime she was ordered to wean her baby at once; tonics were prescribed, and the question of operation was debated freely with her friends. Seven valuable weeks were consumed in this desultory discussion, and finally, at my request, a consultation, which I had already suggested six weeks before, was arranged with Dr. W. B. Craig.

On April 25 Dr. Craig made an examination, confirming the points and diagnosis herein set forth, and advised an immediate operation.

On April 27, at St. Luke's Hospital, the operation of lumbar nephrectomy was performed by Dr. Craig and myself, Drs. Axtell and Bagot assisting. The patient had been prepared as for abdominal section. After sterilizing the lumbar area, a firm pad was placed under the left flank. Starting half an inch below the last floating rib and two inches external to the spine, a diagonal curvilinear incision four inches in length, was made downward and forward over the crest of the ilium. Passing inward, the external border of the quadratus was used as a guide, forming the posterior boundary of the incision; the fatty capsule was taken up and incised, and the kidney brought, by upward pressure on the abdominal wall, quickly into the field.

Dorsally and laterally the kidney was free from serious adhesion, but about the pelvis and vessels and at each pole it was firmly and extensively adherent. Considerable time was occupied in dissecting away the organ, using the fingers where practicable. and the scissors where there was firm connective-tissue union. The latter condition was especially marked at the upper pole, where a solid mass of fibrous tissue, an inch long and three-fourths of an inch in diameter, had formed, including in it the supra-renal capsule. At the lower pole the kidney was larger, softer, and, as would be expected, showed evidence of recent and continuous inflammatory

change from the presence of the pus which gravitated to that area.

It was planned to dissect out the kidney and enucleate it, if possible, without opening into the cavity of the abscess, and by this means guard against infecting the wound. But the adhesions of the lower pole were so extensive, and the parenchyma of the kidney composing the abscess-wall so degenerated, that, in a final effort to free the small remaining adhesion the wall was ruptured and the wound infected. The parts were at once copiously irrigated, the kidney freed from remaining adhesions and enucleated, the ureter and vessels being ligated separately with strong silk. The ureter was stitched in the lower angle of the wound, and a small soft rubber drain inserted into the duct for four inches. The vessel-stump was dropped into the cavity, and the latter packed with iodoform-gauze. Three or four sutures were introduced in each angle of the wound and the center left open for drainage.

The operation, from the first incision to the completion of the sterilized dressing, occupied one hour and five minutes, the freeing of the adhesions consuming most of the time.

The patient's pulse, respiration, and general condition were excellent at the end of the operation. She was left quietly resting on the table in the operating-room for twenty minutes after completion of the dressing and withdrawal of the anesthetic, during which time the temperature of the room was being reduced from 85° F. to 70° F. She was then removed to a room and placed in bed, surrounded with warm bottles, and the usual *régime* observed in cases of abdominal section carried out. She vomited but once in the first forty-eight hours, and but twice afterward. Her temperature and pulse-rate were highest on the second day, 102.2° and 125 respectively. On the fourth day she was normal, and remained so.

It was well understood before the operation that we should likely encounter pus, and that it would be heavily charged with both streptococci and staphylococci, as appeared from examination of the pus in the urine. It was morally certain, therefore, that an elevation of temperature additional to the operative curve would result from the infection caused by rupture of the abscess-wall. Had the patient not been somewhat immune from her long-standing septic condition, a much higher temperature-curve would doubtless have resulted.

The tube in the ureter was removed on the sixth day. The ureter had been syringed once a day with hydrogen dioxid and boric-acid solution. The bladder had been irrigated twice daily with a solution of boric acid, borax and sodium chlorid. The deposit in the urine had almost entirely subsided the day after the operation, but it was thought better to restore the tone of the bladder by removing the very slight amount of pus being formed there; hence the irrigation.

The sutures retaining the ureter, and those in the wound were gradually removed from the tenth day. Four weeks after the operation the patient was discharged in good health. She had greatly gained in color, strength, and weight, and has continued to improve every day since.

The kidney removed measured five inches in length, two and a half inches in width, and one and a half inches in thickness, being one inch and a half inch larger respectively in its two major dimensions than the normal kidney of a woman. The weight of the organ was 175 grams (6 ⅛ oz.).

On section it was found to be studded with abscess-cavities throughout the medullary portion and involving much of the cortex. The pelvis was greatly distended and contained a calcium-oxalate calculus weighing 1.25 grams (20 grains).

The calculus had caused destruction by traumatism and occlusion of the ureter, producing backward pressure. There was no evidence of tuberculosis. On making a microtome-section, and staining for the tubercle bacillus in the tissue, I found none. Other sections of healthy-looking portions of the cortex were made and stained with logwood. The appearance of the tissues was most characteristic, showing the parenchyma to be entirely destroyed by granulo-fatty, cirrhotic, and amyloid degeneration.

THE ENCOURAGEMENT AND SUPPORT OF THE LABORATORY-TEACHER AND LABORATORY-SPECIALIST.

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THE evolution of medical education has created the laboratory-teacher as a recent and very essential addition to the medical faculty. The profession has scarcely yet learned the importance of the work assigned to the laboratory-instructor; nor has it learned how to provide for the maintenance of its new creature.

So long as the commercial spirit pervades medicine, so long will teachers of medicine teach for selfish ends. It is not reasonable to expect an unsalaried teacher to devote his time and energies to his students without looking to his self-interests. As a consequence, the teaching of medicine has not been, as a general rule, broadly and fearlessly honest. Students have not been taught to become self-reliant practitioners in the college-courses. These remarks apply, of course, especially to clinical teachers.[1]

In the good old days of medical education, when staphylococci and streptococci and diplococci and karyokinetic figures did not disturb the minds of educators and students of medicine, laboratory-

[1] I desire to accredit the foregoing ideas to Dr. Bayard Holmes, who has from time to time expressed them in a somewhat different form, and in different relations. The scheme for the development of a laboratory-specialism upon the lines suggested is, however, original, if not novel.

courses and laboratory-teachers were easily maintained. The chemic laboratory and the professor of chemistry offered the only problems to the faculty. Here, as a general rule, everything was easily settled, for his colleagues could recommend to the professor of chemistry well-paying mineral-water and baking-powder agents, from whom the chemist usually managed to obtain sufficient compensation without trespassing on the college-treasury. Failing in this, the professor of chemistry was appointed adjunct to the chair of diseases of the rectum, and, content to await his time, he taught chemistry until the chair of rectal diseases became vacant. Anatomy has always been looked upon as the handmaid of surgery, and for this reason the laboratory-anatomist has rarely given his colleagues concern.

When it became fashionable to give the so-called "laboratory-courses" in histology and in pathology, the instructor was still content to serve this preliminary apprenticeship in order to see his name on the faculty-list of the college-announcement, and with the promise of a slice of clinical toast later in his service. When laboratory-courses in histology and pathology consisted in passing from student to student beautifully colored sections of tissue prepared by the demonstrator, or, more often still, imported from Germany, which were magnified by the exhibition-microscope; or when, later still, these courses consisted in passing dishes of stained sections in clove-oil, all labelled and ready to mount, then a laboratory-teacher could afford to serve his apprenticeship while he waited impatiently for a clinical promotion. Of course the student learned little to make him independent in these days of laboratory-teaching, but he had never learned to look for anything more in other branches of medical instruction.

Gradually, however, the demands for a thorough and liberal instruction have made themselves felt, and as an outcome we witness an ever-increasing agitation for improved medical education. Especially is this true of laboratory-instruction, and a demand for better laboratory-teaching and for laboratory-teachers has arisen. It has come to be recognized among thoughtful medical educators that laboratory-instruction and laboratory-instructors must be entirely divorced from a clinical or a commercial relation. The instructor who makes his laboratory-work the stepping-stone to a clinical specialty can at best do only half-hearted work. The laboratory-instructor who, like his ancient predecessor, the chemist, makes laboratory-work a commercial enterprise, cannot be honest to himself or to his students.

Recognizing the fact that laboratory-teaching calls for much skill, much patience, and much hard work, and that a medical man who is familiar with the remuneration and independence of the practice of medicine must expect, at least, a commensurate compensation for his work, the problem arises, how to provide for the laboratory-teacher. Pay him a salary? Very well. What salary will afford him an equivalent of what his skilful brother-physician earns in his practice? How many of the medical schools of the United States can afford to pay their laboratory-teachers salaries of five thousand, ten thousand, or even twenty thousand dollars a year? And still these sums of money are earned by skilful practitioners; and if the laboratory-teacher be compelled to lay aside all clinical claims, as he surely must to do good laboratory-teaching, is he not entitled to at least a proportional compensation?

In the absence of large endowments—endowments large enough to permit the salarying of all medical instructors—some provision must be made for the teachers of the "unpractical" subjects of the medical curriculum.

As the outcome of certain personal experiences, and as a result of much thought upon this subject, I am prepared to offer certain suggestions for the temporary support of laboratory-teachers in medicine—that is, for the support of those teachers until medicine shall become an endowed institution or a State institution.

In the first place, the laboratory-teachers in medical schools should be encouraged to elect laboratory-teaching as a life-work. They should be discouraged from entering into the clinical fields more than their work demands; and they should not engage in routine private practice. All laboratory-teachers should be paid a salary, and this salary should be as large as the college can afford, though doubtless only a fraction of what a thoroughly good and enthusiastic teacher would earn. Finally, the colleagues of laboratory-instructors should provide for them collateral support of a nature to be discussed later on.

There should be a graded series of promotions in the corps of laboratory-teachers similar to that which obtains to-day among clinical teachers. Certain laboratory-branches, as biology, first-year chemistry, histology, and embryology, for instance, should constitute the introductory work for an aspiring laboratory-man. These branches can be assigned to young men of recognized ability who are recent graduates in medicine. These men should be paid a salary sufficient to enable them to live without practising medicine. The experience obtained in this work would be an invaluable introduction to the higher, and, if they may be so called, more "practical" laboratory-branches, as pathology and bacteriology, physiologic chemistry, and laboratory-medicine.

It is especially to the support of the "practical" laboratory-teachers that attention will be here di-

rected. These teachers must also receive a definite salary. In the present poverty of medicine, however, this salary cannot be a sufficient compensation for the time and work spent in preparatory teaching, nor can it compensate for the valuable services of a man who gives his life to laboratory-work. The laboratory-teacher of pathology, bacteriology, chemic physiology and pathology, and of laboratory-medicine must then receive further compensation. How shall this compensation be provided?

It has already been suggested that his colleagues should give the laboratory-teacher collateral support —that is, they should lend him all possible assistance in obtaining work relating to his laboratory-service, and they should assist him in obtaining pay for this work.

The past few years of medical progress have brought into special prominence the value of laboratory-methods in all lines of clinical medicine and surgery. The vast majority of American clinicians are to-day untrained in laboratory-methods, or, being trained, are too much occupied to apply these methods in their clinical work. These clinicians are coming more and more to look to the laboratory for assistance in diagnosis and treatment, and the time now seems ripe for a new specialist in medicine—*the laboratory-specialist.*

Recognizing that laboratory-methods find more and more application in clinical medicine and surgery, and that clinicians cannot apply these methods, it remains, of course, to place work of this character in the hands of the laboratory-specialist.

The laboratory-teacher's services have already been demanded by his clinical colleagues. It is further true that while these services have been demanded and freely given, they have not been fairly recognized nor fairly compensated. Every laboratory-worker has on his table bottles of urine, bottles of sputum, and bottles of tissue, that represent hours of patient work; but few laboratory-workers have bank-accounts composed of earnings derived from this work. His clinical colleagues have largely treated the laboratory-teacher as a servant. Indeed, there can be no doubt that the tendency of many clinical men, and especially surgeons, has been to look upon a laboratory-colleague as a very convenient assistant, who ought to feel well paid for his laborious examinations for the privilege of obtaining certain valuable specimens or of witnessing the surgeon's skilful operations.

That this kind of treatment is unjust every fair-minded physician must admit. The knowledge and skill required in the prosecution of the many delicate laboratory-manipulations place the laboratory-specialist at least on a par with the most skilful clinicians in medicine and surgery. This being true, and the necessity of laboratory-assistance being recognized, why cannot the laboratory-specialist be treated with the same professional courtesy as the clinical specialist?

The laboratory-specialist can and should receive the same treatment at the hands of his professional brethren as the clinical specialist. He should be treated as a skilful consultant; not as an assistant. His services should be obtained under the same ethics as govern other professional consultations. When the physician or surgeon has a case calling for a laboratory-diagnosis, the laboratory-specialist should be called into consultation, and he should receive for his services a consultation-fee commensurate with the character of the work and the means of the patient.

The field of the consulting laboratory-specialist is very wide at present, and is increasing each day. The methods of the laboratory are each day being extended farther and farther into clinical medicine and surgery. A few examples will serve to indicate the field of the laboratory-consultant, and to suggest the proper course of procedure to the clinicians.

Professor A, a surgeon of much skill, and with a large and remunerative practice, has a case something like this: A man, in good circumstances, has been referred for the treatment of an axillary adenitis, secondary to an infected wound of a finger received some two months previously. The glands have enlarged slowly during the last month, and are only slightly painful on pressure. The important question of a correct diagnosis at once enters into consideration. Is this adenitis the result of a purely pyogenic infection, a mixed infection, or a purely tuberculous infection? Professor A sees at once that, in order to make the diagnosis upon which so much depends, he must call for assistance upon Professor B, the pathologist. Professor B comes to the operation with his tubes of blood-serum, agar, and gelatin, and with a guinea-pig for inoculation. He obtains the freshly removed glands, and with great care makes inoculations upon his agar, gelatin, and blood-serum; and he inoculates the guinea-pig with a bit of one of the glands. Upon his arrival at the laboratory the pathologist proceeds to make a large number of smear-preparations from the suspected glands, which he stains for the tubercle-bacillus, without finding that organism; he also hardens pieces of the glands, and during the next two or three days he cuts many sections of the gland-tissue, which he also stains for bacteria. All of this work furnishes negative evidence, and, further, at the end of two or three days, it is seen that the culture-tubes inoculated at the operation remain sterile. This practically excludes active pyogenic infection from the diagnosis. Now comes the tedious wait of three weeks, until

the inoculated animal is seen to be emaciating and about to die. The animal is killed, and upon post-mortem examination is found to be tuberculous. The pathologist reports his diagnosis to the surgeon, who has waited rather impatiently for it. Professor A thanks Professor B, and proceeds to further operation upon his patient. Professor B sighs for the day when he too can become a great clinical surgeon. He believes that, in this particular case, he has done more work, more important work (to the patient), and more skilful work, than Professor A, and he believes that in all justice he should receive a fee for this work equivalent to that of his surgical colleague. But the services of laboratory-specialists are not recognized at this time, and Professor B is compelled to do what hundreds of fellow-laboratory-workers are doing all over this country—to give his time and services without just compensation.

In this hypothetic case we would suggest that Professor A might have treated Professor B in this manner: Professor A should have informed his patient that in order to obtain a correct diagnosis he must call into consultation Professor B, a skilful laboratory-specialist. He should have informed his patient that he much preferred the consultation with Professor B to that of another surgeon who, like himself, could only add surmise to uncertainty. Of course, the patient would agree to anything that Professor A advised for his good; and, instead of coming into the case as an obscure assistant, Professor B would come introduced to the patient as a skilful consultant. When his work was ended, Professor B would render a bill for his services to Professor A, who would collect the fee from the patient.

A patient from an outlying town is recommended to Professor A, the surgeon, for the treatment of a multiple synovitis affecting both knee-joints and one elbow. Professor A is in serious doubt as to the nature of the disease. Is the infection pyogenic, gonorrheal, tuberculous, or mixed? Professor A cannot make a diagnosis without the assistance of a laboratory-expert, and he feels that conscientiously he cannot treat his patient without making a correct diagnosis. Consequently he again calls upon Professor B, who arrives at the hospital with his syringe, test-tubes, and culture-media, and obtains some of the fluid from the joint for examination. After a series of carefully conducted experiments, including again the inoculation of a guinea-pig, Professor B reports that the fluid contains neither active pus-cocci nor tubercle-bacilli, and that in all probability the infection is gonorrheal. Here again Professor A might have called Professor B in consultation, introduced him to the patient as a consultant, and permitted him to receive a fee for his services. Had it been necessary to call Professor C, the physical diagnostician to decide upon the question of the integrity of the patient's lungs, Professor A would have adopted the latter course. Still it certainly is an open question whether Professor C, with his stethoscope, would have done as much work, or as skilful and patient work, as was required of Professor B.

Examples like the foregoing, in which the surgeon requires the assistance of a laboratory-consultant, might be given in considerable numbers. The bacteriologic analysis of exudates in the chest, in the abdomen, and in the joints, is assuming a very important place in surgical diagnosis. The examination of urine for pyogenic products is rapidly becoming an important factor in the diagnosis of concealed purulent accumulations. The microscopic examination of tumors has always been recognized as an essential part of surgical diagnosis.

These are some of the examples, then, of the cases in which the surgeon is compelled to look to some laboratory-worker for aid. Is it not time that the work of a colleague which means so much to the surgeon's success should be properly dealt with? Is it unreasonable to ask that the laboratory-expert be treated with the same professional courtesy as any other skilful specialist? We believe that every fair-minded surgeon will, once his attention has been properly directed to this matter, treat his laboratory-colleague with proper regard for the character and value of his services. The difficult and important work of this new specialist should not be hidden from the public gaze, while the clinicians win glory and admiration for their brilliant work. The laboratory-consultant should not, in those cases in which he renders valuable services to other practitioners and to the public, be compelled to secretly prosecute his work in the confines of his dingy laboratory, while the clinicians reap credit and reward for the work that could not have been accomplished without the aid of the laboratory-expert.

What has been said of the relation of the surgeon to the laboratory-specialist may also be applied to the other clinical specialists—to the specialist in internal medicine, to the gynecologist—and to the general practitioner. All of these physicians look more or less to the laboratory for assistance in diagnosis. In internal medicine, for instance, there is the examination of urine, blood, and sputum, for a large variety of pathologic conditions. Here, too, we have the very important culture-method for the diagnosis of diphtheria, a method that should be applied in every case of suspicious sore-throat, and one that must prove of incalculable benefit in diagnosis, treatment, and prophylaxis. How few clinicians have the facilities at hand, or the knowledge of bacteriologic manipulation necessary to apply the culture-test for diphtheria? In case the clinician is compelled to call upon a laboratory-expert for this piece of work, should he not, instead of obscurely

sending a swab to the laboratory, invite his colleague into consultation, enable him to procure his own specimen with those precautions that he best knows are essential; and, finally, when a positive diagnosis is reached, should not the laboratory-expert be allowed to collect a fee from the patient for his services?

Similarly, when the gynecologist desires an examination of a piece of tumor-tissue, or of a piece of uterine mucosa, he can call the laboratory-specialist in consultation with him to the patient's bedside, where the tissue can be observed *in situ*, and then be preserved with proper precautions—all matters of great importance to a laboratory-diagnosis, while at the same time affording opportunity for the proper professional treatment of the laboratory-associate.

It is not contended that all possible laboratory-examinations should be made in consultation as indicated in the foregoing examples. A certain kind of routine work, like the ordinary examination of urine, and of sputum, could constitute the "office-work" of the laboratory-specialist. The specimens could be sent to the laboratory, and upon a laboratory-report an ordinary fee could be charged for the examination, without the formality of consultation. But all cases demanding a more careful examination, as bacteriologic analyses, blood-examinations, and tissue-examinations, should be treated as consultation-work.

It is quite impossible to indicate all of the cases in which the clinical specialist and the laboratory-specialist could coöperate to their mutual advantage and to the advantage of the patient; but enough has been said, it is hoped, to illustrate the principle involved and to indicate the only fair course of procedure. If the clinical specialists in the large medical centers of this country will treat their laboratory-colleagues as here suggested, and will make due efforts to bring all legitimate work into the hands of the laboratory-workers, the vexed question of the support of the laboratory-instructors in our colleges will be temporarily settled. Then laboratory-experts will not be driven to form corporations for mutual protection, as has already unfortunately been done. By thus rewarding justly the skill of the laboratory-expert, many young men of promise could be encouraged to enter upon laboratory-work as a specialty, assuring an adequate supply of laboratory-teachers, and opening the way for original researches in laboratory-medicine. The enthusiastic laboratory-student would cultivate his chosen specialty for its own sake, and not prosecute it temporarily as a stepping-stone to a clinical specialty. The laboratory-teacher could then well afford to do the large amount of purely scientific work that naturally comes from an unpaid hospital-service; just as the clinician can afford to do this work when he is assured of an indirect compensation.[1]

ON EPILEPSY IN EARLY LIFE, WITH ESPECIAL REFERENCE TO THE COLONY-SYSTEM IN THE CARE AND TREATMENT OF EPILEPTICS.

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THE very fact that epilepsy has successfully resisted for so long a time the efforts of science to solve the cause of its origin renders the affection always of interest. It is unfortunate, however, that, in a measure at least, its very frequency has a tendency to cause many to regard it as a commonplace affection—a malady that can rarely be cured, and therefore one that has to be endured. This fact, so far as it is applicable, is to be deplored.

Epilepsy is a widespread disease. It is estimated, on a conservative basis, that two persons in every thousand of the population of this country suffer from it in some one of its forms. If all cases of epilepsy could be put on record I have no doubt but that this estimate would be materially increased. Epileptics in the better walks of life and their friends and families are prone to conceal the fact of the existence of the disease.

Reckoning on the basis that two persons in every thousand are epileptics, there would be about nineteen hundred in New York City alone, about twelve thousand in the State of New York, and about one hundred and twenty thousand in the United States.

Epilepsy has been known to exist for some thousands of years, and from time immemorial its victims have been made the receptacles into which drugs, compounds, and decoctions have been literally poured without stint or cessation.

Master-minds have studied the disease in all ages. Hundreds of years ago Hippocrates described epilepsy so accurately that modern clinicians find but little to add to his masterly description. With medicinal, dietetic, hygienic, and surgical treatment we have done our best; and yet, what have we accomplished? It is not a pleasant thing for enlightened science of the nineteenth century to contemplate, but it is a fact beyond controversy

[1] While this article was being prepared for the press I encountered the appeal of Dr. John Slade Ely ("The New Relations of Pathology and Practical Medicine as Bearing upon the Pathological Departments of our Hospitals," Medical Record, August 25, 1894), who makes a very reasonable petition for the salarying of all hospital-pathologists. Greatly as it is to be desired, we fear this suggestion will find tardy acceptance in the present poverty of medicine; and the hospital-pathologist, like the hospital-clinician, will be compelled to look to his associates and to the public for his support.

that, with all our resources, we do not to-day cure 1 per cent. of the cases of idiopathic epilepsy that come under our care. I purposely omit, of course, including in this estimate reflex, traumatic, and such other varieties of epilepsy as have a definitely ascertainable cause, and for that reason are frequently amenable to treatment.

One of the most interesting facts in regard to epilepsy is that it is peculiarly, indeed, I may almost say essentially, a disease of early life. True, it sometimes begins late in adult life. Cases are on record in which the first convulsion occurred after the age of sixty. But when the seizures arise *de novo* at such a late period they are usually of traumatic and not of idiopathic origin. When simple idiopathic epilepsy develops in an idividual who has reached adult life it will usually be found that convulsions had occurred during infancy or childhood.

Seventy-five per cent. of all cases of epilepsy begin under twenty years of age, and nearly 50 per cent. between ten and twenty, the maximum being at the ages of fourteen, fifteen, and sixteen. Again, twelve cases among every hundred begin, according to Gowers, during the first three years. This is a serious fact and one worthy of being remembered when we see an infant or young child suffering for the first time from convulsions, *no matter what the cause may be.*

Females suffer more frequently from epilepsy than males, the proportion being about six to five.

An etiologic factor of vital importance in the study of epilepsy, as well as of other diseases of the nervous system, is heredity. No single cause plays a more conspicuous part. The best observers, including Gowers, trace an inherited tendency to epilepsy in 35 per cent. of all cases. Epileptic children, however, do not come from epileptic parents in all instances. Sixty-six per cent. of those who inherit an epileptic tendency have epileptic parents. The remaining 33 per cent. are born of parents who are or have been insane, or who suffer from chronic alcoholism.

The heredity taint is transmitted to females more frequently than to males. An inherited tendency is found in 33 per cent. of male epileptics, and in 37 per cent. of female epileptics.

During the first ten years of life the number of females that develop epilepsy exceeds the number of males by 6 per cent. This is explained on the ground that when the hereditary predisposition is maternal more females suffer than when the predisposition is transmitted through the father. If this be true, and we have the testimony of the best observers that it is, it affords an excellent illustration of the doctrine of the "survival of the fittest." It would seem that the females, at some time and in some manner not explained, acquire a greater degree of susceptibility to the disease than is acquired by the opposite sex, and that the natural and physiologic propagation of this susceptibility consists in handing it down to the like sex from generation to generation.

Inherited epilepsy usually develops before the age of twenty. It may not, however, appear until late in life. A singular fact in this connection is that when idiopathic epilepsy appears in the parent at a certain age—say twenty-eight, for instance—the offspring is far more liable to develop the same disease at about the same age. This patho-physiologic fact holds true in reference to other diseases, notably pulmonary tuberculosis and certain forms of insanity.

Next to heredity it is my firm conviction that dentition, when severe, and *when acting on an organism that bears the impress of transmitted weaknesses*, plays the most important rôle in causing epilepsy in early life. Indeed, I fully believe that the importance of teething in this respect has not been accorded the careful attention it deserves.

In speaking of epilepsy in infancy, Gowers uses these words: "Of all the cases that commence in infancy at least three-quarters date from infantile convulsions ascribed to teething." This author also believes that rickets acts as a combining cause in such cases.

The relationship between dentition and epilepsy is of peculiar interest, from the fact that it too often happens that just at this period the seeds of future insanity are sown. Infantile insanity is extremely rare, but the undermining of the mental powers that may not be apparent until some exciting cause later in life causes it to develop often begins at this critical period.

Through correspondence I recently secured the views of several well-known physicians bearing upon the relationship between dentition, epilepsy, and insanity. Some of them I give here:

Dr. Abram Jacobi says:

"Every convulsion, ever so slight or short, may produce cerebral hemorrhage, with all the possible results —epilepsy, idiocy, paralysis, and insanity. Such cases are, unfortunately, frequent."

Dr. G. Alder Blumer, Superintendent of the Utica State Hospital, writes:

"My belief is that one must go back of the dentition, and regard the disturbance of this process as the mere exciting cause of the explosion."

Dr. Graeme M. Hammond says:

"I have records of several cases in which convulsions, due to dentition, were followed by true epileptic convulsions, and later by such dementia as we often see in children after repeated epileptic convulsions."

Dr. Frederick Peterson, who has given the study of epilepsy much careful attention, writes as follows:

"I can recall a number of cases of epilepsy due to the convulsions of dentition. Such epileptics might later on have mental disorders."

Dr. T. S. Clouston, Superintendent of the Royal Morningside Asylum, Edinburgh, a thorough and distinguished alienist, wrote as follows:

"I have seen cases of prolonged delirium ending in idiocy arising out of the convulsions of dentition. I have also seen many such cases ending in true epilepsy, followed by insanity. I have also seen so many cases of the insanity of adolescence and others occur in persons who had had severe convulsions when teething that I can scarcely regard the two as coincident."

I have the views of many others, but to reproduce them here would only be to add testimony of a similar nature to that already given. It would be a valuable lesson to learn, and having learned it, to remember it constantly, that the spasms and convulsions of infancy are *serious* manifestations, and if allowed to go unchecked, may lead to explosions of genuine epilepsy, and later on to insanity.

There is, as we know, such a thing as the epileptic habit. Epileptic seizures, once established or even initiated, have a strong tendency to remain permanent through no other apparent reason than the force and power of habit. Of course there is a reason why epileptic convulsions of idiopathic origin tend to repetition; but of this I hope to speak in a subsequent paper.

Bearing in mind the possibility of the establishment of the epileptic habit, we cannot lay too much stress on the importance of promptly relieving the distressing symptoms attending the eruption of the teeth in infancy. The importance of appropriate interference becomes more essential if there be an inherited tendency to mental disorder of any kind in the suffering child. The nervous system of the child is keenly sensitive to abnormal impressions of every kind. At this period of life it is the highest function of the nervous system to receive and register impressions.

Taking all these factors into consideration it would seem that the period of dentition, for a considerable class of children at least, might justly be regarded as an epoch—an epoch that invites epilepsy, with all its remote consequences, mental disorganization and mental death.

It is not necessary that I should speak of the therapeutic measures of relief that we can apply in such cases. I desire simply to call attention to the serious consequences that are likely to follow when the too-little regarded spasms and convulsions of infancy go unchecked.

Among other fruitful causes of epilepsy in infancy and childhood may be mentioned fright, blows and falls upon the head, acute diseases, intestinal worms, digestive disorders, and a generous variety of other causes which act reflexly, such as stricture of the urethra, adherent prepuce, and certain errors in the refractive and accommodative apparatus of the eye.

Fright, as a cause of epileptic convulsions which may be superseded later by true epilepsy, is most active before the age of seven and about the period of puberty. Up to the age of puberty it affects either sex about equally. At the period of puberty girls suffer most. This distribution is explained by reason of the profoundly disturbing effect the transition from girlhood to the higher plane of womanhood has on the entire nervous organization.

Head-injuries often lead to epilepsy, and, by reason of the usually limited area of the brain affected, the type of the disease is more frequently Jacksonian in character. Surgical measures constitute the only rational treatment in such cases. But, in order that good results be secured, they should be instituted as early as possible after the first warning that there exists an irritative lesion in the motor area of the brain that promises possibility of removal through operative intervention.

It sometimes happens that injuries received during childhood, and regarded as unimportant at the time, prove later in life to constitute lesions that give rise to convulsions. The lesion is acquired in consequence of inflammatory thickening of the membranes at the point of injury as a result of hyperplasia of the connective-tissue elements of the cortical layers of the brain. Surgical treatment in such cases does but little good. It is frequently necessary to excise a small portion of brain-substance in order to clear out as much as possible all tissue of foreign growth, and when the incision made by the surgeon heals, a scar is the result, which in time is capable of doing the very harm that was done by the original cicatrix.

Intestinal worms cause convulsions by reflex action, and it is important that the presence of such parasites be detected and that they be removed as soon as possible. Otherwise the epileptic habit is likely to become established.

Severe digestive derangement not infrequently gives rise to convulsions, especially in rachitic and puny subjects and in those that have an inherited tendency to nervous instability. Everything possible should be done to improve the constitutional vigor of such patients. Above all, the matter of diet should receive first consideration. I cannot pass over this part of the subject without briefly referring to the great value of intestinal antisepsis.

So long as there are errors in diet, and so long as faulty and inefficient digestive fluids are poured into the alimentary canal by reason of poor constitutional vigor and disease, and disorganized gastric and intestinal glands, just so long will be encountered fermentative and other processes that call for intelligent and active treatment.

Auto-infection is a common result in such cases, and, it having once arisen, the only way to deal with it promptly and effectively is to render the entire alimentary canal from end to end as free from the products of fermentation and putrefactive changes as possible. Lack of space forbids the further consideration of this part of the subject, and I shall now briefly refer to the very excellent provisions embodied in the colony-system in the care and treatment of epileptics.

It is not necessary that the history of the origin of this system of caring for the epileptic be reviewed. I shall merely suggest that anyone who wishes to familiarize himself with that branch of the subject should read an article by William Pryor Letchworth, LL.D., on "Provision for Epileptics," which was read before the National Conference of Charities and Corrections held at Nashville, Tenn., from May 23 to 28, 1894. The subject is also treated at length by Dr. Frederick Peterson in the *American Journal of Insanity* for January, 1894, in an article entitled "On the Care of Epileptics."

In 1873 the State Commission in Lunacy of New York called the attention of the Legislature to the necessity for some special provision for epileptics. No good came of their recommendations at that time. In 1878 the State Board of Charities referred to the subject, but their recommendations likewise bore no fruit.

Through its State Board of Charities, Ohio was the first State to adopt the colony-system. Efforts toward that end were begun in 1890, and on November 12, 1891, the corner-stone of this beneficent institution was laid at Gallipolis.

There is one very serious fault to be found with the Ohio colony, and that is its official name, the "Asylum for Epileptics and Epileptic Insane." "Insane" and "asylum" are both decidedly objectionable words. They should never be applied to institutions in which the sick are cared for and healed.

In 1892 Massachusetts sought to establish such a colony, but the Legislature of that State failed to take the necessary action.

The Lunacy Committee of the Board of Public Charities in Pennsylvania has been earnestly engaged for two years or more in trying to secure a "State institution" for the exclusive accommodation, care, and treatment of epileptics upon an industrial basis.

Michigan has enacted a law "providing for the care and treatment of epileptics and the feeble-minded in separate buildings on the cottage-plan."

In 1891 the State Commission in Lunacy in New York urged the establishment of a State hospital for the exclusive care and treatment of sane epileptics. Through the persistent and earnest efforts of the State Charities' Aid Association a bill was passed by the Legislature of this State in 1892, authorizing the State Board of Charities to "select a suitable site on which to establish an institution on the colony-plan for the medical treatment, care, education, and employment of epileptics, and to prepare plans and estimates of cost of buildings, and submit the same to the next Legislature." An excellent site, consisting of 1872 acres in the Genesee Valley, was found by the Board, and a bill providing for its purchase introduced in the Legislature in 1893. The bill passed with the almost unanimous indorsement of the members of the Legislature and general public approval. It was vetoed by the Governor for economic reasons. In a modified form the same bill passed the following Legislature and was approved by the Governor.

It was the original intention of the promoters of this great charity to call it the "Sonyea Colony," *sonyea* being an old Indian name signifying "sunshine." This was abandoned, however, after the death of the late Oscar Craig, at the time President of the State Board of Charities, and it was decided to honor that good citizen by naming the new home for epileptics "Craig Colony."

Briefly, it is the object of the colony "to secure the humane, curative, scientific, and economical treatment and care of epileptics, exclusive of insane epileptics." This means that widely diverse and common-sense methods and means will be employed to alleviate the suffering of the epileptic. It means that in addition to medical and surgical treatment, applied in accordance with the light of modern science, Nature, the great restorer, will have an opportunity to do her best. With an abundance of pure air, sunshine, hygienic surroundings, wholesome and well-regulated diet, and physical labor adapted to the condition of each one required to perform it, the beneficiaries of this great charity certainly ought to be rendered far more capable of enduring that which, after fair trial, cannot be cured. They will engage in industrial pursuits of all kinds; agricultural, mechanical, carpentering, cabinet-work, the canning and preserving of fruit, berries, etc., and it is expected that within the course of a short time the colony will be placed upon a self-supporting basis.

Two classes of cases will be received: State and private. It is provided in the law that creates the colony that the State shall pay annually a sum not exceeding two hundred and fifty dollars for the support of indigent patients. In addition to this, it is made incumbent upon the Supervisors of the County from which the patient comes to send to the colony annually the sum of thirty dollars for the purpose of providing the patient with clothing.

Private patients are to be admitted to the colony

by consent of the managers and superintendent upon substantially the same conditions that govern the admission of private patients to hospitals in general. If an epileptic becomes insane while an inhabitant of the colony, he is to be sent to the State Hospital in the district in which he formerly resided. Patients are to be discharged by the superintendent on the approval of the managers.

An excellent feature of that part of the law pertaining to the discharge of patients states that "no epileptic patient shall be returned to any poor-house directly through a superintendent of the poor, or otherwise."

The colony is to be governed by a Board of Managers appointed by the Governor. Each manager serves for five years. The managers are to appoint a superintendent, who must be qualified by the Civil Service Commission as to his fitness for the position.

This radical departure in the treatment of the epileptic ought to produce a rich harvest of good. By reason of his unfortunate malady the epileptic is not permitted to become a part of our social fabric. He is forced from society and from the church, and he is everywhere driven from positions of employment and responsibility whereby he seeks to gain a livelihood. Although he may suffer but slightly by reason of his attack, he is often forced to mingle with the inmates of almshouses and hospitals for the insane, and with the more wretchedly afflicted of his own class.

The colony-system in the care and treatment of this enormous class of unfortunate dependents promises happy results. Time, in other countries, has already demonstrated most conclusively its worth.

70 WEST EIGHTY-EIGHTH STREET.

SYPHILIS BY CONCEPTION.[1]

BY GEORGE DUFFIELD, M.D.,

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SYPHILIS is a disease worthy of the most serious thought and consideration by every specialist and general practitioner. The disease is on the increase, is widely diffused, and is to be found in all countries, owing to the utter lack of sanitary control. The cases seen in private, hospital or dispensary practice, and which leave our care as soon as the annoying symptoms have been relieved, either from ignorance or criminal carelessness go out to relapse and spread the disease broadcast among the innocent of the land.

In every large city there are hundreds of syphilitics with active contagious lesions who are daily in our streets, drinking at the public fountains, or using the one glass in an ordinary railroad car or steamboat, at which innocent women or children seek to quench their thirst, little dreaming that a virus ten thousand times worse than the poison of the rattlesnake lurks on the cup. I appeal to your sympathies to show you that one of the diseases with which we come in daily contact is in our midst to an alarming degree, and your children and mine may be exposed to this fearful contagion. Extra-genital syphilitic infection is much more common than is generally supposed. The cases in which the origin of the disease is a mystery, and cannot be solved by the physician, often come under this form of infection.

Dr. Myles Standish, in the *Boston Medical Journal* of recent date, states that the public towel found in workshops, railroad toilet-rooms, and public wash-rooms, is often infected with syphilitic virus, and reports two cases of the disease that could be traced to this source. In the first instance, a married man became infected, and though warned, infected his wife; in the second a brakeman became infected. In both the primary sore developed upon the eyelids.

"The individual with syphilis, therefore, is not only in danger of communicating the disease in marital relations, and constantly does so, but is also likely to transmit more or less of the taint to the offspring if they survive, and is likewise a constant menace to society by virtue of the contagious character of the disease."[1]

The works of Hutchinson and others give abundant testimony to the dire effects on the progeny of those affected with syphilis:

"It must be remembered that just as syphilis can diminish the viability of the product of conception, and cause the death of the child just before or soon after birth, so it causes loss of life earlier in conception, and gives rise to frequent abortion."

As has been stated, this mortality of fetal life is not the only ill that flesh is heir to when syphilis has been acquired; and such an inheritance is a curse indeed.

The case I am about to report is still shrouded in mystery as to the mode of infection and development.

About the middle of September, 1893, a man of vigorous constitution, strong, robust, aged thirty, consulted me for certain irregular, dark, hyperemic spots that had developed on the palms of his hands. At first they appeared as small, red points; they did not itch or cause any pain or irritation, and vanished on pressure, only to return as soon as the pressure was removed. The wrists, arms, face, and neck were white and free from spots like those on the palms. The hands were very heavily muscled, were strong and showed points of callus the result of work on galvanized iron. The man supposed that

[1] Read before the Michigan State Medical Society, Lansing, May 4, 1894.

[1] Bulkley: "Syphilis in the Innocent." 1894.

he had been poisoned by the iron or some of the tools or chemicals that he had been handling. I advised him to rest a few days and wash his hands in hot soda-water so as to remove all stains and grease. This he did, and the spots became bright rose-pink in color and irregular in shape. As I have always been suspicious of palmar eruptions, and fearing that I had a case of syphilis to deal with, I made a careful examination of the patient's body, throat, and nose, but with negative results. There was no history of having had a chancre, hard or soft, but there had been an attack of gonorrhea nine years before. Had the man contracted syphilis at that time, secondary symptoms would long before have manifested themselves. Being uncertain as to the condition present, I sent him to Dr. A. E. Carrier, who thought the eruption of an erythematous nature with possibly a syphilitic origin.

About the first of November the man called on me again. There were now a good many more erythematous spots upon the palms and also upon the wrists. A few dry, scaly patches appeared upon the scalp, upper lip and eyebrows, causing the hair, moustache and eyebrows to fall out. Upon the scrotum there were half a dozen spots of the same color as those upon his hands. Upon the prepuce there was a point that was thickened. This was not seen at first; not until it was taken between the thumb and finger was it appreciable that there was any change in the tissues. It was not sensitive, but was simply an induration without erosion. There was no discoloration, no secretion from it, nor had there been. The patient claimed that he had never noticed it himself—but I doubt his statement. He declared that he had never had any intercourse away from home since he had been married, nor had he had sore-throat or a mucous patch. His wife I had known for four years. She was twenty-seven years of age, and had had one miscarriage two years after her marriage, after carrying water and coal to the second story. She had never had a skin-affection, but three years ago had a severe attack of diphtheria,since which time she has been in fair health.

On December 20th the husband told me that his wife had become pregnant, the second time since their marriage, seven years before, and wished me to call and make the necessary examination and give needed directions. Personally I was anxious to make this examination, to see whether my suspicions were well grounded as to the husband's syphilis and whether or not he had inoculated his wife. The examination was made with great care. There was no vaginal discharge and had never been; there was no history of dysmenorrhea or displacement, no swelling of the vulva and no enlarged glands in the vulva or groins. There were no indurated points in the vagina. There was no rash, no sore-throat, no loss of hair; there was absolutely nothing to suggest that the woman had been exposed to or had absorbed syphilitic virus. The pregnancy had advanced about five and one-half months, the last menstruation having taken place in the early part of July. The fetal movements had been felt and the placental bruit was plainly heard.

On January 15th, 1894, the woman called at my office suffering from fever and sore-throat. The tonsils were swollen and red. All her bones ached, but more especially those of the lower extremities. She had severe headache at night. The temperature stood at 102.5°. The attack simulated one of severe tonsillitis complicated with rheumatism. The symptoms were suggestive of syphilitic fever, but there were so many symptoms wanting that I thought it best to wait until some positive sign should show itself. The woman was given a mild gargle, with salol and phenacetin, and in about four days the temperature had fallen to normal. With the subsidence of the fever red spots broke out on the lower part of the abdomen, which she thought resembled the spots her husband had had on his hands in the summer. In a day or two a bright-red rash appeared upon the abdomen, confining itself to the skin over the enlarged uterus. It did not extend to the thorax or the limbs. It was undoubtedly a syphilitic roseola. Mucous patches appeared upon the tonsils, the soft palate, the tongue, and the buccal mucous membrane, and slight glandular enlargement in the groins accompanied the rash. Dr. H. A. Cleland saw the woman in consultation at this time and confirmed the diagnosis. He thought that the husband's initial lesion had been in the urethra—or at least that it had been hidden. The symptoms as found in the wife were proof-positive of syphilitic infection. She was put upon a strong solution of mercuric chlorid until marked physiologic effects showed themselves, when she was given a pill of protiodid, gr. ¼. The mucous patches were touched frequently with the solid stick of silver nitrate. In a few weeks the rash and mucous patches entirely disappeared, and there has since been no return of syphilitic manifestations.

I hoped that thorough mercurial saturation of the mother might have a beneficial effect upon the child *in utero*, which was undoubtedly the source of the maternal infection. The treatment was continued for three months, but I failed to note any effect, unless it was that the child when born was alive. Nunn[1] says that in his experience the treatment of syphilis during pregnancy does not protect the child from congenital syphilis, but that when pregnancy has terminated, treatment is more successful.

Etienne[2] states that if treatment be employed throughout pregnancy, we may hope to obtain almost complete immunity from this infantile mortality.

In an article on "Hereditary Syphilis," W. Gilman Thompson[3] states that "when the father only is actively syphilitic, he usually transmits the disease to the child through the spermatozoa. This is called 'conceptional syphilis.'" Etienne states

[1] Medical Press and Circular, 1891.
[2] Annales de Gyn., April, 1892.
[3] Pepper's American Text-book of Medicine, 1893, vol. i.

that paternal syphilis is less injurious to the fetus than maternal syphilis.

Early in April I noted that the fetal heart-beats and placental bruit had become weaker, and that the movements felt by the mother were less vigorous, and therefore concluded that the child would be stillborn.

On April 7th, about 3 A.M., the waters broke while patient was asleep. The pains began soon after, were frequent and harassing during the day, but at 8 P.M. the os had dilated only an inch. The pains were very hard, but they made no impression upon the cervix, which appeared swollen and unyielding. The woman had been in labor twenty-four hours and still there was little dilatation of the os uteri.

Dr. W. P. Manton was called in consultation at about 2 A.M. He found a rigid os, dilated about two fingers, but not enough for the application of forceps. Hot douches were given and an hour and a half was spent in waiting for the dilatation, which would not take place, although the pains increased in severity. Pressure by the fingers inside the cervix finally caused sufficient dilatation to allow the introduction of a narrow-bladed forceps, the patient having first been anesthetized. The bones of the child's skull were very thin and could be easily indented by the finger; possibly this soft and unresisting head was one of the reasons why the dilatation of the cervix had not gone on more rapidly. During traction the cervix was drawn so far downward as to be visible at the vulva, and required to be pressed upward under the symphysis, as it greatly retarded the advancement of the head. After half an hour's hard work, with but slight advancement of the head, deep incision of the cervix was resorted to and delivery accomplished without further delay, the child being born alive.

The child's head was very pointed and the caput succedaneum large and conical in shape. The sutures of the skull were wide open, the fontanels very large, and the bones soft and yielding. The placenta was delivered by Credé's method, and was studded with syphilitic gummata of a yellowish-white color. The cord was long and thin and was wound once around the child's neck.

The child had an eruption on its body, especially under the arms and upon the sides of the thorax. The cervical glands were enlarged and the mouth showed mucous patches. The right eye, though cleansed at once, developed a catarrhal conjunctivitis. Within ten days after birth the child was covered from head to foot with an exanthematous rash—a syphilitic roseola.

The treatment of the child from the first has been by inunction, twenty drops of a 10 per cent. solution of mercury oleate being rubbed in twice a day with marked benefit, although since the physiologic limit has been reached there has been considerable colic following the inunction. On the twelfth day after delivery two small gummy nodules appeared on the occiput, showing the child to be in the tertiary stage; the fontanels are still widely dilated and also the sutures.

The mother has nursed the child, and the supply of milk has been large and satisfactory to the well-being of her offspring. No mucous patches have yet appeared upon the nipples.

Perhaps the treatment of the mother by mercury alone—when she was suffering from secondary symptoms—may be criticised by some, but the effect could not have been better. Not a single syphilitic symptom has reappeared. Potassium iodid has been withheld purposely, as it was thought that the secretion of milk would be better without its use, and so it has proved.

The question naturally arises: Was the syphilis of the newborn derived from the father or the mother? It is my opinion that the spermatozoa of the male contained the microörganism of the disease. The latest investigations on the cause of syphilis show that it is due to a microörganism, and Klebs, Birch-Hirschfeld, Lustgarten, and others have described a bacillus found in various syphilitic lesions.

In 1884 Lustgarten described a bacillus that he found in sections of syphilitic ulcers, and which he believed to be the specific agent in this disease. He described the bacillus as smaller than that of tuberculosis, and occurring in curved or straight forms, singly, in pairs and groups, but never as rods. It is never found free, but is contained in round cells. Other observers have verified the existence of the bacillus, but no satisfactory experimental evidence has as yet been adduced.[1]

As to when the paternal syphilis was acquired is still a mystery. It was undoubtedly due to sexual transgression, and at the time fecundation in the wife took place, the husband was saturated with the disease, which had never been modified by treatment. His spermatozoa must have been surcharged with the specific microörganisms or their spores, and their toxic effect was manifested in the fetus with terrible virulence.

Now that the mother is infected, the question naturally arises: From which source, father or child, did the contagion emanate? I think from the latter, because the syphilis of the baby is more advanced than that of the mother, and the mother's syphilis is of a lighter degree or more attenuated. Then, too, the lateness of the syphilitic fever in the mother must be considered—the fetus was five and one-half months old before the mother showed a symptom of infection.

Diday[2] believes that the mother does not become syphilitic through the placenta, but through the blood of the fetus begotten by a syphilitic man.

The large gummata of the placenta on the side of the child show almost conclusively that the latter

[1] Sternberg's Bacteriology.

[2] Archives de Tocologie, 1891, No. 11.

was syphilitic long before the mother, and proved itself to be a hot-bed of infection, the microörganisms easily passing from the diseased placenta to the innocent mother. The absence of all initial symptoms in the mother, it seems to me, is conclusive of the conceptional transmission.

The tendency and frequency of abortion in syphilitic mothers is a point of interest that should be mentioned here. Etienne states that the mortality of the fetus in cases in which the mother has never been under treatment is enormous, reaching 95.5 per cent. Abortion occurs in about two-thirds of all syphilitic women—that is, when the women are primarily affected and have skin-eruptions and mucous patches at the time of conception. If infection of the fetus occurs during the first three months, and is not subjected to treatment, the mortality during the first few days after delivery reaches 100 per cent.[1]

The chances for a premature discharge of the fetus when the father alone is syphilitic are considerable, but this does not occur so frequently as when the mother is primarily affected. Neumann states that if the father is syphilitic, and the mother first becomes so in the later months of pregnancy, the hereditary syphilis in the child will be intensified.

Recent notes on 1127 pregnancies, collected by Fournier, show that the infantile mortality, when the disease is inherited from the father alone, is 28 per cent.; when from the mother alone, 60 per cent.; when from both parents, 68 per cent. Le Pileur claims that not over 7 per cent. of the children of syphilitic parents outlive the disease.

Fournier attended a family in which the first three children were born at term, robust and healthy. The father then contracted syphilis, and his wife, becoming infected, aborted three times in succession. Fournier also reports that at the Lourcine Hospital 145 out of 167 of the children born of syphilitic mothers died in the institution within six weeks after birth. From trustworthy statistics of 441 cases only 100 children who had syphilitic mothers survived infancy, while 341 perished, 335 dying during the first year of life, and only six surviving this period.

Professor Chambrelent,[2] of Bordeaux, reports the case of a young married woman who contracted syphilis during her second pregnancy, but who had no initial lesion.

I know that some observers claim that infection of the fetus is more rapid than that of adults, partly from the fact that the new tissues resist less, and the blood, being so saturated, carries the disease into vital organs more rapidly than in an adult.

A fetus that develops and passes through the first and secondary stages of syphilis, and enters the tertiary period, all within 285 days from conception, displays a great shortening of the periods of the disease, and plainly demonstrates that inherited syphilis is much more virulent than is acquired syphilis in the adult.

The duration of syphilis is still a matter of discussion. Thompson puts the duration of the initial lesion at six weeks, the secondary symptoms at from two months to three years, and the tertiary period as beginning between the third and sixth years, and lasting for twenty years or more.

When the treatment has been systematically carried out for two and one-half, or better, three years, and there is no return of symptoms within six months, the patient may be regarded as cured, and he may marry without endangering mother or offspring.

The transmission of syphilis by mothers who have the disease, even though they have been under treatment, is well illustrated by Nunn,[1] in the case of an infected woman aged sixty, whose daughter gave birth to an infant with symptoms of syphilis. The father of this infant could not be proved to be syphilitic. The case shows that syphilis is transmitted even to the third generation.

[1] Etienne, Annales de Gynécologie, April, 1892.
[2] Archives de Tocologie et de Gynécologie.

[1] The Medical Press and Circular, No. 2742, 1891.

CLINICAL MEMORANDA.

TWO CASES ILLUSTRATING THE IMPORTANCE OF COMPLETELY EMPTYING THE UTERUS IMMEDIATELY AFTER MISCARRIAGE; OPERATION FOR ABDOMINAL EXTRA-UTERINE PREGNANCY AND REMOVAL OF FIBROMA OF UTERUS.

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CASE I.—Some months ago I was called to see B. F., about thirty-five years old, a colored woman, married, and the mother of four children. She complained of having felt badly for some time, perhaps two weeks or more. She did not present any symptoms of definite trouble, but merely said that she was not as well able as usual to do her work, felt weak and had some headache and a poor appetite. Questioning failed to elicit anything more definite upon which to base a diagnosis; so a tonic was prescribed, and a second visit promised in about a week. At the end of that time I found her feeling and looking much worse, with a temperature of about 101°, and stating that she had had slight chills. The pulse was somewhat rapid, and symptomatically the case looked like one of malarial fever; so five grains of quinin were prescribed three times a day, with a suitable dose of calomel at night.

At my next visit, soon afterward, I got a more com-

plete and truthful history, and one that began to point to the cause of the trouble. The woman then told me that about three or four months previous to my first visit she knew herself to be pregnant, as evinced by well-known symptoms that had become familiar to her in several previous experiences. Everything went well until within a number of weeks before my first visit, when she had suffered a sudden and profuse flooding, losing a large quantity of blood, and passing very large lumps, which she could not describe more accurately than that they were large and looked like liver or flesh. After the hemorrhage her abdomen began to diminish in size, the invariable sensations felt during her pregnancies left her, and in their stead ill-health had crept on; her weight had decreased, and, varying in quantity and constancy, the bloody discharge had continued and grown more unendurable by acquiring a very offensive odor.

I carefully explained the seriousness of her condition, that she had evidently miscarried at the time of the flooding, but that her womb certainly contained something to keep up the bleeding, and which was poisoning her. Permission for an examination was asked, with the comment that an operation would no doubt be required. Though daily growing worse, the woman flatly refused to allow a vaginal examination, and requested something for the discharge. With regret at her stupidity, I ordered an antiseptic vaginal douche, feeling sure she would eventually yield in preference to the risk of dying. After a few more days, during which her pulse grew weaker and her temperature remained several degrees above normal, although she was fully under the influence of quinin, she consented to an operation, provided no preliminary examination be required. The indications by this time were so plain, in fact, so urgent, that I determined to go ahead without an examination beforehand, or, after getting her under chloroform, to abandon the operation if it were unnecessary.

When the operation was begun the os uteri was sufficiently dilated to admit a finger, and discharging from the cavity of the uterus an offensive fluid mixed with shreds of decomposing tissue. The probe passed without resistance to the depth of seven inches, a fact that surprised me, as I expected to find the uterus more contracted after such a length of time from the supposed miscarriage. The cervix was then dilated and the uterus thoroughly and carefully curetted, removing a quantity of broken-down membrane and other tissue, until the curet failed to bring away any more and grated against the firm uterine wall. The uterine cavity was next gently syringed with warm carbolized water, and I was preparing to mop it with an antiseptic astringent when the uterus gave a spasmodic contraction of some violence, and to my astonishment a tiny white foot presented through the external os. I seized it with forceps, withdrawing it and a leg, and continuing with the use of forceps and curet, until a whole fetus, three inches long, was delivered in sections. A second fetus followed the first, and was removed in like manner, after which the uterus was found contracted down to a size of about four inches, and I felt sure it was empty. It was again irrigated and swabbed out with a solution of Monsel's solution and carbolic acid in glycerin. Following the operation, the patient's temperature immediately began to decline, and in two days was normal. The discharge, which had continued about a month, ceased, and she made a rapid and perfect recovery. She has been in good health ever since, and, in addition, has been delivered of a healthy infant.

This case and the following one illustrates, among other practical points, with what tenacity and persistence the uterus at times retains bits of membrane, or even a whole fetus after its death. And they also point to the only rational and safe treatment of such cases, viz., immediate and complete emptying of the uterus. If hemorrhage continue after miscarriage, it is dangerous folly to temporize with the use of ergot and other drugs in the expectation that a serious condition will right itself. There is a possibility that it will, if let alone, as in a number of other pathologic states, but it is the duty of a physician, both to his patient and himself, to aid Nature by the speediest and safest methods; and to neglect a miscarriage is neither, but is a direct invitation to hemorrhage, sepsis, inflammation, and similar evils that often lead to chronic invalidism or death. As in these two instances, patients will from various motives intentionally or ignorantly conceal facts from their attendants, causing them to grope in the dark or be entirely misled, but they should persistently search after causes, and a direct physical examination, not only after suspected miscarriage, but in a number of obscure affections, will be a simple procedure, as well as prove a revelation, which endless questioning could never elicit.

CASE II.—Miss L. T., twenty-one years old, was a patient at the Hospital for the Women of Maryland in 1892. Soon after her discharge she was married, and in about three months, during the course of a miscarriage, she hastily summoned me one night, the messenger, a member of her family, saying that she was bleeding profusely. Upon arriving at the house I found her lying on a sofa downstairs, having been suddenly taken with a flooding, and unable to reach her bedroom. As it was time for her menstrual period, and she was suffering somewhat the same as she had at previous periods, except that the flow was more profuse, she refused to allow a vaginal examination, though urgently advised to submit to one. After close questioning I concluded she must be undergoing a miscarriage, and so expressed my opinion to the family, but the patient obdurately refused to permit an examination. She was then quite weak from the loss of blood, and in the course of four days, her condition having become alarming, and the hemorrhage still continuing, she agreed to an examination. The os uteri was found widely dilated, and an irregular mass blocking it up. The patient's condition at this time was bad, with evidences of septic infection. On the next day I thoroughly curetted the uterus, removing a quantity of offensive decomposed membrane, after which the uterine cavity was irrigated with a carbolized solution and mopped out with diluted Monsel's solution and carbolic acid. The dangerous symptoms receded immediately after this operation, and the woman made a good recovery, though convalescence was slow.

For several years previous to this the patient had been subject to constant pelvic pains, which progressively grew worse, and were found to be due to inflamed and prolapsed ovaries. The removal of these organs was advised, but before deciding whether or not to accept

operation the patient again became pregnant. All the symptoms of pregnancy, including troublesome nausea and vomiting, continued for three months and then ceased. The patient's former suffering also ceased, and she felt better than for a number of years. As time passed, no abdominal enlargement occurred, as was expected, and it became a question as to the cause of such a change in her feelings, both regarding pregnancy and the state of her general health, which was good.

A vaginal examination, made about five months after the symptoms of pregnancy began, did not throw much light on the subject; the ovaries were prolapsed and painful as before; no signs of pregnancy, and no abdominal enlargement were present, and no tumor could be discovered by palpation. Menstruation had ceased for five months, and a probe was not passed. The woman was advised to await developments, and to do nothing unless there seemed to arise some reason for interference.

Six months after the last menstruation I was again summoned, and found the patient in great pain, and passing blood. Though this was the date of expected menstruation, this time she made no objection to an examination, and I found a round object protruding from the mouth of the uterus. Upon removing this with my finger her pain ceased at once. An examination proved the object to be a uterine mole the size of a lemon. Then, of course, the behavior of the case was immediately cleared up; the patient had become pregnant; death of the fetus occurred after a certain time, and instead of being expelled, as is usual, it degenerated into the rare phenomenon of a so-called uterine mole, expulsion eventually following. To feel sure that the uterus had been emptied of its contents—and it is a point to be especially noticed—though everything seemed to have passed, I curetted the cavity of the viscus, removing a few small fragments of membrane. Recovery from the miscarriage was prompt.

The pelvic pains returned in a short time with increased severity, rendering the woman unfit for her duties or for pleasure, and as she was rapidly declining in health, removal of the ovaries was again advised. On May 15, 1894, at the Woman's Hospital, I removed both ovaries and oviducts. The left ovary was almost entirely destroyed by a cystic growth. Previous to operation there had been some uterine hemorrhage for two or three weeks, and the uterus was somewhat enlarged, presumably from subinvolution. Following the passage of the mole, menstruation had recurred at regular intervals. Six days after the oöphorectomy, though the patient had been progressing favorably in every respect, she was seized with violent abdominal pain, and by a vaginal examination a small mass was found presenting at the dilated mouth of the uterus. The clearing away of some clots relieved her pain at once, but the mass could not be removed by my finger. The condition of the patient suggested that at the time of operation a pregnancy in its early stage had been overlooked, though that seemed impossible.

The patient was again chloroformed, the protruding object removed with forceps, and the uterus thoroughly curetted, some very strongly adhering bits of membrane being scraped out. The mass proved to be not a recent embryo, but a thick fragment of membrane remaining from the passage of the mole, despite the precautionary curetting three months before the time of the last operation.

Beyond a moderate amount of shock, the curetting did not unpleasantly affect the patient, nor in any way disturb the favorable progress of affairs after celiotomy. The presence of the retained membrane explained the cause of the uterine enlargement preceding the celiotomy, as well as the metrorrhagia. In a similar future case I should curet a second time *before* performing celiotomy, and not risk compromising results by ignoring the possibility of a necessity for curetting so soon after a capital operation. In this instance, however, I felt so sure that the uterus was empty that the curetting did not seem necessary.

CASE III. *Extra-uterine pregnancy complicated by uterine fibroma.*—The patient was a colored woman, forty-five years old, married, and the mother of eleven children. When first seen by me, and at the time of operation, her history was that she had been in bad health for over a year, and had an abdominal enlargement. She was very weak, and for some time had been unable to work. Questioning elicited no further information beyond the fact that about a year previously she had missed her menstrual period once or twice, after which she became regular, as usual. Being near the menopause, and not presenting special symptoms, this slight irregularity of menstruation did not seem of importance. Upon physical examination a mass the size of a small cocoanut was found in the pelvis and attached to the uterus, which was not much beyond the normal size. On palpation through the thin abdominal walls a large irregular tumor could be felt, apparently a fibroma, but which possessed the peculiarity of a slightly movable, angular projection from its surface, which I remarked as rather unusual to occur in a fibroid. By bimanual palpation through the vagina the mass in the pelvis and the lump in the belly were found to form a single body, freely movable by pressure brought to bear against one or the other alternately; nor was there anything to indicate that the whole was not an individual solid tumor.

My opinion, based on the single examination and what little history was given, which amounted to nothing, was that the patient suffered from a uterine fibroma that had existed a much longer time than she imagined, as no symptoms other than abdominal enlargement had attracted her attention. Her condition urgently demanded relief, especially as she was obliged to earn a living, and after a full explanation to her and her husband that it was uncertain what could be accomplished, if anything, and also that the operation was very dangerous, both consented to risk it.

The place of operation was unique and picturesque, but by no means convenient, its chief advantage, and a very important one, being an abundance of pure air. The woman lived in a small one-room log cabin on a mountain top, commanding a view for miles across a lovely and historic country. An old door, full of shot from former target-service, laid across a chair and table, formed an operating-table. The place of a sterilizer was substituted by an old iron pot, over an open fire outside of the house, which did not boast of a stove. The male members of the family attended to the pot and furnished hot water on demand.

The attending physician had ordered the house to be

scrubbed and whitewashed; ventilation was ample, and under the circumstances the surroundings were as favorable as they could be made, and beyond its surgical aspect the operation was one of more than ordinary interest. The patient had been properly prepared.

Through a long abdominal incision the state of affairs was much more plainly seen than could be reasoned out or determined in any possible way before the operation, as is so many times true in intra-abdominal surgery. Instead of simply a large fibroid of the uterus, it developed that in addition, we had to deal with an abdominal extra-uterine pregnancy. Enclosed in a thin sac was a fetus weighing about five pounds, that had been dead for a considerable time; the sac, firmly adherent to all surrounding viscera, forming with its contents and the uterus and a fibroid growing from the uterus, a large, consolidated tumor.

Through an opening made into the sac, the fetus was easily lifted out, and then it appeared that its natural attachments were absent, there being no placenta and no umbilical cord, this organ being represented by a slight knob on the child's abdomen. The fetus itself was much distorted, and its limbs and body firmly glued together by dense organized adhesions. The fate of the cord and placenta was merely a matter of speculation; they could not have escaped detection, as the whole abdominal cavity and its contents were open to plain view.

The removal of the sac was not such an easy and safe proceeding. The bowels and other viscera were densely adherent to it, but by carefully separating the adhesions with the finger-nail and ligating and then cutting away sections of the sac when necessary, the whole was removed without troublesome hemorrhage or injury to the viscera.

Having disposed of the sac, the fibroid was attacked. Its pedicle was round, with a web-shaped projection that was ligated separately, and then the main pedicle carefully ligated with very heavy Chinese silk. The tumor was cut off and its stump freely mopped with Monsel's solution. The fibroid proved to be cystic. Considerable oozing took place from the torn surface of the adhesions, but ceased upon pressure and the free flushing of the abdominal cavity with boiled water. The pedicle was left within the abdomen, the wound closed with silk sutures, and for fear of future hemorrhage, as oozing had been free, a glass drainage-tube was inserted, though I should have preferred not to have been obliged to use it.

There was no noteworthy shock during the operation, and almost as soon as she was put to bed the patient awoke and wanted to talk. She suffered no nausea or pain, and, considering the severity of such an operation on an ill woman, the outlook seemed promising. At my visit in the afternoon she was comfortable. That ended my personal care of the patient, but after my return to Baltimore her physician reported in a day or two that she was doing well; the drainage-tube had been removed, the bowels had moved, the temperature had become normal, and the patient was anxious to eat, and comfortable in every way. Five days following the operation, however, she began to fail, and at the end of a week died. The wound healed, and all seemed to progress favorably until a few days before death, the cause of which was not satisfactorily determined, but may have been due to septicemia or exhaustion preceding and increased by the operation.

855 PARK AVE.

A CASE OF URTICARIA WITH COINCIDENT GLYCOSURIA.[1]

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A DISEASE like urticaria, of which the essential feature is instability of the vasomotor nerves, paroxysmal in its manifestations, and in which the paroxysms are induced by intrinsic or extrinsic irritation, mechanical or chemic, acting centrally or peripherally, may have its origin in widely different and in remote and obscure derangements of the organism; while the occurrence of pathologic conditions and processes, each in itself sufficient to account for the disorder, and each intensifying the morbid influence of the other, may make it difficult to determine the ultimate etiologic factor.

Owing to the physiologic relation between the skin and the alimentary canal, disturbance of the latter is a common element in disease of the skin, and probably the most frequent cause of urticaria. Glycosuria, on the other hand, while it is known to give rise to various pruriginous eruptions, is one of the less common causes of this common lesion. Kaposi[2] enumerates this affection among the dermatoses diabetica, and Crocker, in his text-book on *Diseases of the Skin*, mentions glycosuria in a long, classified list of causes of urticaria.

In the case about to be described gastro-intestinal derangement, with all its complexities, was still further complicated by the presence of sugar in the urine. The patient, a lad eleven years of age, came to Dr. Cantrell's clinic at the Philadelphia Polyclinic Hospital, February 27, 1894, accompanied by his mother, and from her the following history was obtained.

Both parents are living and well. The patient has three brothers, all in good health. The youngest, four years of age, was then under treatment for eczema, but otherwise was well, as his bright, rosy face amply testified. The paternal grandmother had rheumatism, and a paternal uncle died of chronic nephritis induced by exposure while intoxicated. No other member of the family has ever had urticaria.

The patient is slender and fair, and has naturally a somewhat fragile appearance, to which a striking pallor and conspicuous blue veins about the temples lend an exaggerated effect. When he was two years old he had an attack of measles and since then he has been "delicate." Prior to this he was vigorous. Between three and four years ago he had an illness which was pronounced "malaria" by the attending physician. For two years past he has had urticaria. He is troubled with dyspepsia and constipation, complains of headache and vague pains in the limbs and elsewhere, is easily fatigued and is very sensitive to cold. He is also subject to "nervous spells," as his mother expresses it, of

[1] Read before the Alumnæ Medical Society, June 9, 1894.

[2] Wien. med. Presse, 1883, No. 23.

two and three days' duration, which are characterized by great restlessness, followed by an apathetic and drowsy condition. They are ushered in by severe headache, but otherwise are unaccompanied by distress, and appear to have no causal relation to the urticaria.

On his first visit the patient had a few pink wheals on the arms—all that remained of a profuse eruption that had appeared on his getting out of bed that morning. Factitious wheals were easily produced by local irritation. The efflorescence was said to be usually most abundant on the extremities, and to consist of "spots and bumps," varying in superficies from a pin's-head to a dime. As a rule, not a trace of it remained when he arrived at the clinic. On two occasions there was a papular eruption on the hands and wrists, with here and there a large white wheal with an encompassing pink halo, and several small patchy areas of hyperemia. The paroxysms were not observed to occur after meals, and do not appear to be associated with the taking of any special article of food, but exposure to cold was invariably followed by an evolution of wheals.

The itching was most intense just prior to the appearance of the eruption, and the boy's remark that "It doesn't itch when it's all out," bears out Jacquet's reversal of the old formula: "Ce n'est pas l'eruption qui est prurigineuse, c'est le prurit qui est eruptif."[1] The patient complained of his skin feeling dry and uncomfortable; it was, however, soft and smooth to the touch, and frequently bedewed with moisture, and his sensations were probably due to the anemic condition of the tissue and its saturation with sugar.

The chronicity of the urticaria, and the frail, depressed condition of the patient, led to a careful and extended investigation of his case. Physical examination yielded negative results. The complaint of headache suggested that the eyes might be at fault, but the ophthalmologist reported in effect that nothing was amiss with the eyes; a slight refraction-error, not sufficient to require lenses, being the only departure from the normal. In an examination of the blood the estimate of hemoglobin was 75 per cent., showing that the boy's extraordinary pallor was only partly caused by the anemia which it suggested, and was perhaps mainly due to an unequal distribution of the blood—in this case to determination of blood to the abdominal splanchnic vascular area, in consequence of chronic digestive disturbance, which sometimes gives rise to a very pale and anemic skin without any deficiency in the hemoglobin. Analysis of the urine revealed the presence of sugar. The specific gravity was 1026, and all the physical properties were those of saccharine urine. A suitable regimen was thereupon advised, but as subsequent analysis gave only a partial reduction in the amount of sugar, probably because instructions were not closely followed, codein, in conjunction with strychnin and quinin, was prescribed. Under the influence of this combination the sugar promptly disappeared and the specific gravity declined to 1018. Quantitative analysis made prior to the administration of codein, but after the patient was on a diet from which starches were largely and sugar entirely excluded, gave 0.9 per cent. of sugar.

[1] "On the Pathogeny of Urticaria, etc.," Gazette des Hôpitaux, 1892, lxv, 1259.

Polyuria and concomitant symptoms of diabetes were wanting, and the progress of the case was contrary to that of this grave constitutional disorder in children, which is rapidly from bad to worse. So far as could be learned, there was no hereditary influence to account for the glycosuria, nor could a history of somatic or psychic trauma be obtained, and it must be regarded either as a transitory functional disturbance, such as is said to be not uncommon in markedly neurotic persons, or as a "paroxysmal neurosis" corresponding to the uric-acid shower in persons having the gouty diathesis, and sometimes occurring together or alternating in the same individual.

Examinations of the urine were made at regular intervals during the twelve weeks the patient was under observation, and it remained free from sugar both during the administration of codein and also after its discontinuance. The sediment was always inappreciable in amount, but the patient's mother said that at times there was a "red, sandy settling"—probably uric acid. Boiling almost invariably precipitated a cloud of calcium phosphate. In another case of urticaria, in a colored woman who presented herself at the clinic at the same time, analysis of the urine was attended with similar results—sugar and phosphates were in excess. (Further observation was not made in this case, as the patient did not return.) Phosphaturia is not uncommon in dyspepsia, and J. F. Goodhart,[1] in a paper on "Transient Glycosuria of Neurotic Origin," mentions a case in which the glycosuria was accompanied by persistent phosphaturia.

Urticaria usually grows worse on the approach of warm weather, but, nevertheless, with the complete disappearance of the sugar from the urine the patient began to improve. The intervals between the paroxysms lengthened, and the pruritus diminished, this giving him so little annoyance now that he no longer takes the trouble to apply the phenol-lotion that he previously used with benefit. Although the spontaneous eruption appears only every two or three days, instead of two or three times a day, as before, the cutaneous irritability persists, and factitious wheals are as readily provoked as at first. Letters or figures traced with the finger-nail or other suitable means stand out in strong relief against the surrounding skin as white, raised lines, with hyperemic borders. The irritation (the writing) is followed by a momentary linear pallor replaced by a faint red line, which in a few seconds becomes white and prominent, while at the same time parallel pink zones develop on either side. The white line has the appearance, and gives to the touch the impression of a hard, distended vein, or of a cord just beneath the epidermis, lifting it. It may be seen to swell for from four to five minutes, and synchronously the hyperemic zones broaden, their width depending on the vascularity of the part. The phenomena are said to correspond to a transient initial dilatation of the capillaries of the affected area, quickly followed, first by spasmodic contraction, and then by paralytic dilatation, with serous exudation into the papillary layer. The development of the factitious wheal is usually accompanied by tingling and heat, but in this case subjective sensations were not experienced; the

[1] British Medical Journal, 1889, ii, 1381.

patient said he should not be aware of the wheal if he did not see it. The central edematous portion is analgesic, from the benumbing pressure of the exudate on the sensory nerves, and the patient could not distinguish the point from the head of a pin applied to it. The hyperemic zones are said to be hyperesthetic, but in this case they did not appear to be any more so than the adjacent normal skin. These wheals, like those which appear spontaneously, are evanescent; their average duration is half an hour, but they may persist for one, two, or three hours, and exceptionally for a much longer time, as in this case, in which, on one occasion, letters traced over the sternum at four o'clock in the afternoon had not entirely faded at nine o'clock the next morning. Cases are on record in which the wheals lasted twenty-four hours, and even two days. The vasomotor instability is usually heightened by warmth, but it is noteworthy that in this case the special factor in its exaltation is cold. On the occasion just referred to, when the factitious wheals were so persistent and the irritability was so excessive that mere contact was followed by an urticarial blush, there had been a sudden fall in the temperature the previous night, and the day was comparatively cold. Bronson[1] records a similar case, occurring in a woman in whom a paroxysm took place whenever the temperature was suddenly lowered, and who was always worse in cool, damp weather.

This unstable equilibrium of the cutaneous sensomotor nerves, in virtue of which wheals can be excited by local irritation, constitutes the dermographism of French writers, otherwise urticaria factitia. Barthélemy, who has recently made an exhaustive study of this condition, while he admits the clinical and anatomic identity of the induced and the spontaneous wheal, is of the opinion that urticaria and dermographism are not the same, and that even when they coexist and are due to the same cause they are, nevertheless, independent of each other. Dermographism he regards not as a disease *sui generis*, but as a state of the nervous system in which it is peculiarly susceptible to impressions—that is, to toxic influences. Two conditions are essential: (1) an irritable and excitable nervous system, innate or acquired; and (2) a toxic agent that affects the peripheral vasomotor nerves (cutaneous theory), or the centers in the cord and medulla (bulbar theory). Hysteria and the arthritic diathesis are supposed to determine a state of the nervous system favorable to dermographism, though, of course, this may occur in the absence of both. Mild and intense forms are recognized, the chief factor in the grade being the susceptibility of the nervous system and not the severity of the intoxication. Finally, this condition, "a genuine intra-cutaneous manifestation of hysteria," Barthélemy suggests, though not in itself serious, is an evidence of an established intoxication, of diminished resistance on the part of the nervous system, and is never found in health. It occurs in many diseases, especially those giving rise to auto-intoxication, is common in dyspepsia and neurasthenia, and exists in every case of genuine urticaria. Barthélemy also states that he has seen it in six cases of diabetes. The same author calls attention to the influence of toxins on the vasomotor centers, as demonstrated experimentally by Charcot and Bouchard.

Intravenous injection of a secretion-product of the bacillus pyocyaneus, called anektasin, by its inhibitory influence on the chemotactic susceptibility of the plasma, will prevent local non-inflammatory edema and even inflammatory edema. A contrary effect is obtained by ektasin, a ptomaïn isolated from tuberculin, which stimulates the vaso-dilator centers and augments vasomotor reaction, with consequent dilatation of capillaries, stasis, serous exudation, and diapedesis; and the circulatory ataxia in urticaria is explained on the supposition that toxins occurring in the organism, those of the alimentary canal in particular, have a similar action. On this view the latency of the disorder is comprehensible, and also its localization, when we remember that the dilator fibers govern local areas and do not influence the general circulation. The nervous system is charged, so to speak, and it needs but a touch to evoke a manifestation. More recently S. Mackenzie, in a clinical essay entitled "On the Nature of Urticaria,"[1] suggests that the distribution may be accounted for by stimulation of the nervous plexuses of the skin by *something* in the circulation, possibly a "metabolic by-product."

When for any reason digestion is delayed, and the ingesta remain too long in the several divisions of the alimentary canal, there is abnormal fermentation and putrefaction, with the development of toxins, to which not only the disordered function of the cutaneous vasomotor nerves may be ascribed, but also the headache, languor, and general *malaise* of which this patient complained. That the glycosuria served incidentally to aggravate the urticaria there can be no question, as the disappearance of the sugar from the urine was followed by very decided improvement; but the gastro-intestinal derangement still dominates the case, and probably was the cause of the skin-disease in its incipiency, as it is now that which perpetuates it. Another view might be taken, which in nowise controverts the foregoing. The glycosuria, the digestive disturbance, the "nervous spells," and so forth, may all be dependent on the gouty diathesis, which is certainly suggested by the patient's hereditary and clinical history, and which, then, is also the underlying cause of the urticaria.

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[1] Morrow's System of Genito-Urinary Diseases, Syphilology and Dermatology, vol. iii.

HEPATIC ABSCESS.

BY GEORGE TULLY VAUGHAN, M.D.,
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THE following cases of abscess of the liver occurred in my practice while stationed at Evansville, Indiana, in charge of the marine hospital at that port. In none of the cases could any history of malaria or of dysentery or other bowel-trouble be elicited, so that they must be classed etiologically as idiopathic.

The causes of hepatic abscess usually given are:

1. The ameba coli in cases of dysentery.

2. Suppurative inflammation in other parts of the body, especially in connection with the portal circulation or the branches of the inferior vena cava, as ulceration in typhoid fever, colitis, proctitis, appendicitis, pelvic and perineal abscess, and hemorrhoids; also septicemia and

[1] Brit. Journ. of Dermat., 1894, vi, 65.

pyemia, and injuries to the skull and other bones, producing osteomyelitis.

3. Foreign bodies and parasites, as gall-stones, needles, fish-bones, etc., from the alimentary canal, the ascaris lumbricoides, echinococcus, and tubercle-bacillus.

4. Traumatism, the skin not necessarily being broken.

5. Idiopathic, when, the cause being unknown, the disease is attributed to excessive heat, sudden chill, malaria, or the excessive use of alcohol.

Climate, race, age, and sex are to be considered as predisposing causes. Tropical and subtropical countries furnish most of the cases. The condition occurs in the negro as well as in the white man, but I cannot say which is the more predisposed. The large majority of cases occur during the active period of life—from twenty to fifty years of age. Sex is a very important factor, as it appears from the statistics collected that only about 3 per cent. of cases occur in women. As stated by Professor W. C. Dabney, the most important symptoms are directly connected with the liver, such as swelling, pain, and tenderness on pressure in the hepatic region. These symptoms, with irregular chills, fever, and sweats, give strong presumptive evidence of abscess of the liver.

According to Cyr, quoted in Sajous' *Annual*, if the abscess is located in the convex part of the liver, there is dyspnea and marked pain radiating toward the chest and shoulder, seldom jaundice; if located in the center, there is absence of local symptoms, but decided jaundice if the abscess be large; and when seated near the under surface there is an absence of thoracic symptoms, but stomach troubles, such as vomiting, are likely to exist. Chyluria is a symptom that should be remembered, in order to exclude pancreatic and hemato-parasitic diseases. It was not observed in any of my cases.

Without doubt the proper treatment is early incision, with free drainage, under aseptic conditions. Of six cases that I have seen treated in this way (including my own three), five recovered, and the sixth would probably have done so had not the operation been delayed until the abscess had opened into the right lung. The abscess-cavity was not irrigated in my cases. The pus being sterile, as a rule, irrigation seemed unnecessary, and I have seen it produce unpleasant symptoms.

CASE I.—F. P., a white boatman, twenty-six years old, was admitted to the hospital on February 27, 1891, having suffered for five weeks with severe pain in the region of the liver, with irregular chills, fever, night-sweats, occasional vomiting and a dry cough. The bowels were constipated. There was no history of malaria or dysentery, but the patient had used alcoholics steadily for several years. There was evident tumefaction in the epigastrium and right hypochondrium, most marked at a point midway between the navel and the cartilage of the right ninth rib, where also the pain and tenderness were greatest. The liver-dulness in front extended from the fifth rib to the level of the umbilicus.

The stools were light in color, the urine dark, and thought to give a slight bile-reaction with chloroform, though it gave none with Gmelin's test.

For three weeks after admission to the hospital there was little change in the symptoms. The temperature, taken in the mouth, ranged from 37°–37.3° C. in the morning to 37.5°–38° in the evening; but the pain grew worse, requiring large doses of morphin for relief. It not being clear whether the case was one of abscess of the liver or one of obstruction of the cystic duct or bile-ducts, exploratory celiotomy was considered justifiable.

Chloroform was given, and under aseptic precautions an incision fifteen centimeters long was made through the skin and fascia from the most prominent part of the cartilage of the right ninth rib downward, parallel with the linea alba. The muscles were divided to the extent of ten centimeters, down to the peritoneum, which was found thickened, but not adherent to the liver.

All bleeding was arrested, and the peritoneum opened by an incision eight centimeters long, bringing the liver into view. Two fingers were introduced, and, as far as they could reach, the liver was felt, giving the sensation of a fluctuating tumor with thin walls. As there were no adhesions the visceral and parietal layers of peritoneum were stitched together with catgut, thus closing the peritoneal cavity and leaving about five centimeters of liver-surface exposed at the bottom of the wound, which was packed with iodoform-gauze and dressed. The next day firm adhesions were found to have formed, effectually sealing the peritoneal cavity. A knife was thrust into the liver, with the expectation of inducing a large outflow of pus, which, however, failed to appear even when the instrument had been inserted to the depth of two and one-half centimeters.

A large aspirating-needle was then tried, and at the depth of seven and one-half centimeters about sixty cubic centimeters of bloody pus were withdrawn. A finer needle was introduced in various directions in the liver-substance, to the depth of from five to eight centimeters, but only blood was found.

The wound was packed and dressed as before, and the dressing was changed about every fourth day. The pain gradually disappeared, the pulse and temperature became normal, and one month after the operation the patient was discharged, apparently recovered, with a considerable diminution in the size of the liver. Two years later there had been no return of the abscess, and the patient was in fair health.

CASE II.—This case is of especial interest on account of the unusually large size of the abscess.

C. M., a negro laborer, about forty-five years old, was admitted to the hospital for treatment in September, 1891. According to his account he had been suffering with acute hepatitis for about a year. There was no history of malaria or dysentery, but of irregular chills and fever, sometimes rigors, followed by fever and profuse sweats, pain in the region of the liver, progressive weakness, emaciation, and dyspnea.

The pulse ranged from 90 to 100, the temperature from 38.9° C. to 39.5°. On examination no tender spot, fluctuation, or bulging between the ribs could be detected. The lower extremities were much swollen, and the dyspnea was great. The abdomen was enormously distended, especially over the region of the diaphragm, from which it gradually tapered above and below—the patient's body having much the appearance of a barrel. The patient was chloroformed, and under aseptic precautions an exploratory incision into the abdominal cavity was made in the median line, just above the navel, and of sufficient length to permit the introduction of the hand, by means of which a large fluctuating tumor of the right lobe of the liver was distinguished,

almost filling up the abdominal cavity. Strong adhesions were detected on the right side, at about the level of the eighth rib, and an incision was made from without into the liver, through the site of the adhesions, between the eighth and ninth ribs, in the axillary line. This was followed by a jet of pus, which, owing to the tension under which it had been retained, escaped with such force that it struck the wall about five feet above the floor, and thus a good deal was lost before it could be made to flow into the vessel provided for it.

About six liters (one and one-half gallons) of pus were caught in a vessel, and it was judged that fully two liters escaped on the floor, making, by a conservative estimate, a total of eight liters. The wound in the median line was closed with catgut sutures, and healed by primary union, without suppuration. A large rubber drainage-tube was passed into the abscess-cavity through the opening between the ribs, and secured in that position by a safety-pin and adhesive plaster, with just enough projecting to allow the introduction of a small cork. This cork was for a time removed once daily to allow the pus to escape, later less frequently, and at the same time the tube was gradually withdrawn as the cavity contracted, until it was removed entirely two months after the operation. The patient was discharged, recovered, December 15, 1891. When last heard from, in June, 1893, through the kindness of Dr. Edwin Walker, who assisted me at the operation, the patient was in good health.

CASE III.—J. R., a negro boatman, twenty-one years old, was admitted to the hospital on December 21, 1891. He had been suffering with severe pains in the right side and shoulder for three or four weeks. No history of malaria or dysentery could be elicited. No chills occurred, but there was acceleration of pulse and elevation of temperature, with profuse perspiration. On account of the severity of the pain and its location, with the other symptoms, abscess of the liver, with adhesions, was suspected, and proved by getting pus on the introduction of a hypodermatic needle. The abscess was opened by an incision in the axillary line between the eighth and ninth ribs, about seventy-five cubic centimeters of pus being evacuated. The symptoms improved, but in less than a week the temperature began to rise again. Under chloroform-anesthesia a careful examination of the abscess-cavity was made, when the finger broke into a second abscess just below the first, about the same quantity of pus being evacuated. An opening was made between the ninth and tenth ribs and a tube introduced, so as to drain the lowest part of the cavity. The patient gradually improved, and was discharged, recovered, April 1, 1892.

RETENTION OF URINE FOR ELEVEN DAYS.

BY J. H. MCCARTNEY, M.D.,
SURGEON P. M. CUSTOMS AND SURGEON IN CHARGE OF THE METHODIST EPISCOPAL HOSPITAL, CHUNGKING, CHINA.

THE patient, a Chinese married lady, about twenty-one years old, had given birth to a medium-sized child eleven days previously to my having been called, and up to that time had passed no urine, with the exception of a little dribbling now and again. There was a constant desire to urinate, but the woman could not relieve herself.

On examination we found the abdomen greatly distended, to all appearances like that of a woman before labor. The external genitals were in a normal condition, with the exception of the left labium, which was somewhat swollen. The woman complained of having great pain and high fever, but no rigors. She had eaten nothing for three or four days. As she was greatly frightened, an anesthetic was given and a catheter introduced. The urine came away with great force, nearly six and a half quarts in all (the exact amount is not known, as some was spilled in the beginning). It had a high odor and dark-brown color. The woman made an uneventful recovery. Dr. Gross says that death usually occurs in these cases in from three to four days from uremic poisoning.

MEDICAL PROGRESS.

Successful Trephining in a Case of Traumatic Hemorrhage into the Brain.—HARRIS (*Lancet*, No. 3693, p. 1444) has reported the case of a man, forty-three years old, who came under observation in an unconscious condition three days after having fallen down a flight of stairs while intoxicated. He could be roused and attempted to answer questions, but his speech was thick and quite unintelligible. A day after the accident he had a fit, although he had never had one before, and he became unconscious. On a level with and about half an inch to the left of the external occipital protuberance was an irregular, oblique scalp-wound about an inch and a half in length and extending down to the bone; there were also severe contusions of the right arm and left thigh. Shortly after coming under observation the man became drowsy and could not be roused to speak, although he resisted any attempt at passive movement of his limbs, excepting the left arm, which to all appearances was in a state of complete paralysis. The pupils were dilated and equal, and responded sluggishly to light. The eyes were slightly deviated to the right. During the night the man had eighteen fits. These commenced with twitchings at the left angle of the mouth and of the fingers of the left hand, and were characterized by stertorous breathing, foaming at the mouth, convulsions, chiefly confined to the left side, the eyes being strongly deviated to the right, and consciousness being entirely lost. There was incontinence of urine and feces. The temperature was 101.8°. On the following day, the fits still persisting, forty grains of potassium bromid and twenty grains of chloral were ordered. A fit occurred twenty minutes after the draught, at 10 P.M. another, and a third during the night. For the following ten days the patient remained in a drowsy condition, at one time relapsing into complete unconsciousness, at another being sufficiently sensible to attempt to answer questions when shouted to him, but his speech was never intelligible. His temperature varied between 101° and 103°. His respirations were occasionally rapid, at other times labored. On one occasion he had an attack of syncope. During the last two days of this period there was complete insensibility of the left conjunctiva and cornea, and no reflex could be elicited. No abnormality was discoverable with the ophthalmoscope. On the twentieth day after the accident the patient became much worse; he remained quite

unconscious, with labored respiration, and appeared comatose. It was finally decided to trephine over the center for the left arm, and the operation was accordingly undertaken on the twenty-second day after the accident. Ptosis of the right eyelid and left facial paralysis had made their appearance. After a segment of bone had been removed the dura mater was found to be of dark-purplish hue, but otherwise appeared healthy. An incision into the membrane was followed by a spurt of dark, venous-looking blood, which exploration showed to come from the center of a large clot, conical in form, its apex pointing toward the center of the brain; the outer layers were degenerated and buffy. The greater part of this was removed, and the cavity was well syringed out; a drainage-tube was introduced; the soft parts were brought together with a few sutures, and the wound was dressed antiseptically. Before the patient was removed from the operation-table the left corneal reflex was easily obtainable. There was some recurrent hemorrhage from the interior of the seat of the clot on the night of the operation. On the fifth and sixth days following it the patient had three fits very similar to those at the commencement of his illness, but there was no further recurrence. Otherwise recovery was uninterrupted. The return of power in the left arm was slow, but full use of the part was ultimately regained, and when dismissed the man was in all respects well.

A Case of Unilateral Gigantism has been reported by HORNSTEIN (*Virchow's Archiv*, cxxxiii, No. 3, p. 440; *Schmidt's Jahrbücher*, 1894, No. 8, p. 126), in which histologic examination (the first in cases of the kind published) disclosed a condition of hyperplasia of the soft parts, especially the connective tissue, the osseous tissue being similarly affected in slighter degree. The patient was a child, two and a half months old, the daughter of an insane mother, and the cause of whose death was not made clear by the autopsy. Both axilla contained a conglomeration of lymphangiectatic cysts as large as hazel-nuts, and adherent to the skin. The thymus could not be found. The face and trunk were symmetric. The right ear was the thicker, though not longer than the left. The upper and lower extremities on the right side were larger than on the left. Microscopically it was found that the increased size of the right ear was due to thickening of the skin and hyperplasia of the subcutaneous connective tissue. In the right foot there was also hyperplasia of the subcutaneous connective tissue. In the right foot there was also hyperplasia of the fatty and muscular tissues. Tendons, nerves, and vessels were also thicker upon the right side. There was but little increase in the size of the bones. The spinal cord and ganglia presented no abnormality. The peripheral nerves of the right side were thickened by increase in the epineurium and perineurium, and the nerve-bundles presented an increased diameter. On staining with hematoxylin some bundles appeared unduly pale, but on staining by the method of Weigert the medullary sheaths appeared normal. A small number of so-called bladder-cells, such as have been found in cases of cachexia thyreopriva or cretinism, collected in groups, and always cut transversely, were found only on the affected side. The possibility of any connection between the morbid condition and the thyroid gland is emphatically rejected. The muscle-buds of Kölliker were enlarged, and richly developed on the affected but not on the sound side.

An Unusual Mode of Transmission of Syphilis.—SENGER (*Dermatologische Zeitschr.*, 1894, Band i, Heft 5; *Monatssch. f. prakt. Dermatologie*, Band xix, No. 4, p. 211) has reported the case of a man, thirty-five years old, who was infected with syphilis at the age of twenty-eight, presenting a chancre, then enlargement of the inguinal glands, and later mucous patches in the pharynx. He submitted to an energetic course of treatment with mercurial inunctions, but eight weeks afterward patches reappeared in the pharynx, the glands of the neck became enlarged, and a syphilitic palmar psoriasis made its appearance. The man submitted to a second energetic course of treatment with mercurial inunctions, which was followed by a long course of potassium iodid. After this there were no further symptoms of syphilis. Nevertheless, the patient a year later underwent another course of inunctions, and afterward married a healthy girl, who gave birth to three healthy children, without any miscarriages. The woman came under observation subsequently with several typical broad condylomata upon either side of the labia majora, slightly enlarged glands in the groin, and syphilitic psoriatic spots upon the neck. On inquiry it was learned that the husband had several months before observed upon the penis an herpetic ulcer that caused no pain and soon disappeared. It was from this time that the symptoms of the wife dated. There was no evidence that the husband had received a new infection, or that the wife had been exposed to any other source of infection. The explanation offered is that somewhere in the body of the husband—perhaps encapsulated within the prepuce—the syphilitic poison had remained latent, until set free by some unknown or indifferent cause, when it occasioned the vesicle which proved capable of transmitting the infection.

Congenital Absence of the Pectoralis Major and Minor Muscles of one Side.—LITTLEWOOD (*Lancet*, No. 3697, p. 19) has reported the case of a boy, ten years old, who, following a slight injury to the right shoulder, discovered that he had no armpit on the corresponding side. At the front of the chest, on the right side, all the ribs were visible, being subcutaneous and uncovered by muscle. Neither pectoralis major nor minor could be seen or felt. The coracoid process stood out distinctly. A firm membrane was attached to the inner extremity of the first rib and adjacent portion of the clavicle at one end, and to the inner part of the tip of the coracoid process at the other end. It became tense on drawing the arm to the side, and probably represented the costo-coracoid membrane. In this position of the arm there was also to be felt a slight ridge of the skin, like a strand of fascia, about the position of and corresponding to the anterior axillary fold. The other muscles about the scapulo-humeral articulation were much better developed upon the left side, and this was more noticeable in the anterior portion of the deltoid and coraco-brachialis muscles. The nipple was present and well developed. The shoulder-joint was powerful, and all of the movements were well performed. Circumduction was much more free than on the left side.

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SATURDAY, SEPTEMBER 15, 1894.

THE RESPONSIBILITY OF THE INSANE.

THE never-failing topic in medical jurisprudence, of the responsibility of the insane, was made the subject of special discussion in the Section on Psychology of the British Medical Association at its recent meeting. On the principle that misery loves company, we may find some satisfaction in learning that English alienists are as much troubled by antiquated methods of legal procedure as psychologists are in this country. The law, being so largely based on precedent, pursues in some respects a system diametrically opposed to scientific principles. In a general way, we may say that in science the most recent authoritative utterance is assumed to be the most trustworthy, but in law the antiquity of a maxim is a point in its favor.

In 1843 a formal declaration was made by English judges as to the rule upon which the plea of insanity is to be accepted as a defense for homicide, and this still stands, though some judges, appreciating the advances in science, have widened the application so that it is less oppressive. Nevertheless, when it is considered that the rule was laid down fifty years ago—even then, doubtless, not representing fully the medical knowledge of the time—and that in the period that has elapsed greater progress in criminology has been made than in the two centuries preceding, we can realize how great is the discordance between the practice of courts and the views of experts.

Though judges and juries, both in this country and in England, occasionally take a scientific view of the responsibility of the insane murderer, the usual practice is to look upon the plea of insanity as a mere expedient of the defence. The sentiment of the community is largely in the same direction, and is of course likely to influence juries, and not be entirely without influence upon judges and prosecuting officers. There are several reasons for this tendency in public opinion. Every large community presents almost every grade of mind, from the most exact to that which is the subject of the wildest vagaries. It is often difficult, and sometimes impossible, to determine when reason ceases and insanity begins. The whole question is most abstruse, and hence, as in all abstruse questions, ignorant persons do not hesitate to form and hold opinions. That the readiness of some professional experts to exhibit a partisan interest on the side for which they are called has materially discredited expert testimony is well known. Prosecuting attorneys, judges, and the community at large, are wont to regard the statements of medical witnesses for the defence as dictated by fees rather than by belief.

Another circumstance that prevents calm consideration of the evidence of irresponsible insanity is that murders committed by such irresponsibles are often atrocious, and the feelings of the community are highly wrought. The horrors of the murder are detailed with great vividness by the daily newspapers, and prosecuting attorneys are held responsible for the swift expiation of the crime.

The delusional insane are so erratic and impulsive that persons having no relation to the delusions may be murdered in a sudden burst of passion over a trifling dispute. In a well-known Philadelphia case a tradesman was killed during a disagreement as to the merits of an article that had just been sold. On the trial it was shown that the prisoner had for years exhibited the typical conditions of delusional insanity, yet the trial-judge would not allow the question of the man's mental condition to be decided apart from the trial proper. The prosecuting attorney pressed for and obtained a verdict of murder in the first degree, offering no expert testimony to combat that produced by the defence. Nevertheless, the error of the verdict is doubtless admitted, for several years have elapsed since the trial, and the

death-warrant is not yet signed. In a similar case in Washington, however, the judge charged the jury in accordance with the views of the experts, a verdict of not guilty was rendered and the prisoner was sent to an asylum.

It will be seen from these cases that the absence of sound scientific basis for the present attitude of the law gives rise to uncertainty of judgment, and leaves the fate of a murderer almost to chance. This defect is fully brought out in the British discussion, and cases are noted parallel to those just cited. In the Philadelphia case, the policeman who arrested the murderer and the magistrate who committed him were allowed to testify that they did not consider him insane, and English jurisprudence parallels this in the remark of LORD WESTBURY "that any ordinary man is as good a judge of insanity as anyone else."

In considering this topic we must carefully distinguish between the abstract question of moral responsibility and the concrete one of actual disposal of a particular case. Alienists are not contending for the release of the criminal insane; they are simply contending for a clear judgment of each case upon scientific principles. If it be the will of a community that anyone who is known to have deliberately killed another shall die, so let it be; but such is not the will of any civilized community. All recognize conditions of irresponsibility that render punishment out of the question, and it is the purpose of the law, assisted by science, to ascertain the existence of such mental conditions in any given case. The medical man who honestly advocates a particular opinion (and with the mere fee-taker we have no concern) arrives at his views as he would at any other diagnosis, by a consideration of the phenomena of the case. He decides that a prisoner is insane, as he would decide that he had typhoid fever or pulmonary tuberculosis. With the effect of that decision on the subsequent course of the law the expert has nothing to do. It is obvious that an irresponsible murderous lunatic ought not to be at large, but the necessary commitment to an asylum is to be provided for by act of legislature and enforced by the court.

The discussion before the British Medical Association seems to have been limited to papers prepared for the occasion. DR. MERCIER recommended that the law should be altered so as to allow a verdict of "guilty, but insane." SIR FREDERICK BATEMAN discussed the topic of "Criminal Anthropology," and expressed doubts as to the soundness of the position of the Italian school. The Section resolved to solicit Parliamentary action. The tendency of American lawyers to follow English precedent will render it likely that if advanced methods of determining and affirming the insanity of criminals be attained in England it will not be long before the reform will influence American jurisprudence.

A peculiar feature is exhibited in the report of the meeting as published in the *British Medical Journal*. We give it *verbatim*:

"The ruling of MR. JUSTICE CAVE in the case of BROCKLEHURST was even more emphatically contradictory of the literal interpretations of other judges. When counsel for the prosecution was about to address the jury on the subject of the prisoner's insanity the judge interposed with the remark that the doctor had said distinctly that the prisoner was of unsound mind. Counsel suggested that the question for the jury was whether the prisoner was capable of appreciating the difference between right and wrong. The judge said, 'No; the question is whether he was insane at the time—(laughter)—and if a man is suffering from the delusion that his wife tries to poison him and is unfaithful to him, and attacks her in consequence, it is as clear as anything can be that the man is mad.' Turning to the jury he said, 'Do you feel any difficulty about it, gentlemen?' 'Not the slightest,' said the foreman. (Loud laughter.)"

It is often said by sarcastic Americans that the sense of humor must be highly developed in our British cousins to permit them to extract amusement from the pages of their comic weeklies. It is not quite clear from the report whether the laughter was in the court or at the meeting, but it must require a high sense of humor to perceive anything laughter-provoking about the incident, either in its occurrence or in its relation.

REVIEWS.

A TREATISE ON APPENDICITIS. By GEO. R. FOWLER, M.D., Examiner in Surgery, Medical Examining Board of the Regents of the University of the State of New York; Surgeon to St. Mary's Hospital and to the Methodist Episcopal Hospital; Consulting Surgeon to the Relief Hospital and to the Norwegian Hospital, Brooklyn. 8vo, pp. 190, with 35 woodcuts and 4 plates. Philadelphia: J. B. Lippincott Co., 1894.

IN this book we have a revised reprint of the widely commended series of articles by Dr. Fowler, which appeared in the *Annals of Surgery* last spring. The work is systematic, scientific, and complete in so far as the very latest knowledge of the subject can make it. An unusual practical experience with appendicitis, together with a just appreciation of the work of others and a familiarity with the literature has enabled the author to present a most satisfactory and valuable monograph

which can without reserve be heartily commended. A wide circulation of the volume must certainly lead to earlier diagnosis of this terrible disease, and to a much lessened death-rate if the details of treatment set forth are adhered to.

Full chapters are devoted to anatomy, clinical history, etiology, bacteriology, pathologic anatomy (written by Dr. Van Cott), diagnosis, and treatment. In all of these will be found many original observations and ideas, as well as numbers of hitherto but little known or little appreciated facts. The chapters devoted to bacteriology and pathologic anatomy are of especial note and interest, and demonstrate how quickly the innumerable workers in these fields now work out conclusions. The illustrations are numerous and well executed, while typographically the work is of high grade.

MATERIA MEDICA, PHARMACY, PHARMACOLOGY, AND THERAPEUTICS. By W. HALE WHITE, M.D., F.R.C.P. Professor and Lecturer on Materia Medica and Therapeutics, etc. Edited by REYNOLD W. WILCOX, M.A., LL.D., Professor of Clinical Medicine and Therapeutics at the New York Post-Graduate Medical School and Hospital, etc. Second American Edition revised. 8vo, pp. 661. Philadelphia: P. Blakiston, Son & Co., 1894.

BOTH author and editor of this book have done their work so well that it seems ungracious to inquire whether the work was worth doing. Yet we doubt very much if the very brief discussions of the physiologic action and therapeutic effects and uses of many of the drugs mentioned in this book will be of service either to student or physician, unless he has at the same time access to a larger work, such as Brunton's or Bartholow's; for therapeutics is not a subject that readily lends itself to condensation. Unless one is satisfied with the merest empiricism, no concise manual of therapeutics can, therefore, stand by itself as a safe guide to the choice of remedies. As a note-book to refresh the memory of the student and as a quick reference-book for the experienced physician, who merely wishes a concise statement of some certain point, the book is admirable. Evidently no pains have been spared to make it accurate, and its arrangement is scientific. It is the best book of its class now in the market, and it has been made so in no slight degree by the additions and emendations of the American editor.

VITAL STATISTICS OF NEW YORK CITY AND BROOKLYN. Covering a Period of Six Years ending May 31, 1890. By JOHN S. BILLINGS, M.D., Surgeon United States Army, Expert Special Agent. Quarto; pp. 529 and maps. Washington, D. C.: Government Printing-Office, 1894.

THIS is a handsome volume, containing tables and illustrations prepared under the direction of Mr. William A. King from data furnished by Mr. D. L. N. Peixotto and others. The data are grouped in two periods, the six-year period and the census-year period, each ending May 31, 1890. The maps are most instructive and show two principal points. The first is that the death-rate, without regard to the class of inhabitants, is greater in both cities over made land and reclaimed swamps and bays than elsewhere; and second, the death-rate is highest in the most crowded tenement-districts. Perhaps the general reader will be interested to note the fact that the death-rate among the children of Irish mothers is highest, and it is lowest for the children of mothers born in Russia and Poland. The statistics are given in extreme detail and furnish material for a study too extended for the space at our disposal. This is one of the most valuable statistical works published during the past year, and should be studied in connection with the report of the Bureau of Labor in relation to the slums of great cities. It should also be studied in connection with the condition of the labor-market during the six years which it covers.

GUY'S HOSPITAL REPORTS. Edited by W. A. WHITE, M.D., and W. H. A. JACOBSON, M.A., M.CH. Vol. L, being Vol. XXXV of the third series. London: 1894.

IN addition to the many admirable monographs and reports contained in this volume, there is an index from Vol. I, 1836, to Vol. L, 1893, which will be very much appreciated by authors and students. A study of five cases of pernicious anemia with determinations of the iron in the viscera, and some observations on the urine are contributed by F. Gowland Hopkins, Gull Research Student. The liver and spleen in all cases contained an excess of iron, though the amount varied widely in the different cases. The urine was highly acid, nearly always dark in color, and the absorption-band at F could almost always be observed spectroscopically, even when the color was less marked than usual. The specific gravity varied between 1010 and 1012, and uric acid crystals were frequently deposited, even when the percentage of uric acid was normal. The pigments were normal urobilin and hematoporphyrin.

The report of one hundred and forty cases of pyrexia by Dr. J. H. Bryant is an extremely valuable research, and the same may be said of Perry and Shaw's paper on "Diseases of the Duodenum." Hale White contributes a clinical study on the effect of giving levulose and inulin to patients suffering from diabetes mellitus, confirming what has heretofore been published on this topic.

CORRESPONDENCE.

HYDROPHOBIA—STATISTICS DESIRED.

To the Editor of THE MEDICAL NEWS,

SIR: Will you permit me through your columns to ask that my professional brethren will communicate to me the occurrence of cases of so-called hydrophobia in their practice for the year 1894, from January 1st, and so on until the end of this year?

I would like in all cases to learn: 1. The sex and age of patient; *a*, the kind of animal that is credited with the inoculation; *b*, its state of health; *c*, the provocation to bite (if any existed). 3. The reasons why the animal was (if it was) deemed rabid. 3. The seat of the bite (or other mode of inoculation). 4. The fact and method of cauterization (if any). 5. The time between the inoculation and the outbreak. 6. The symptoms of the

outbreak—the occurrence of mania or imitation of dog actions. 7. The remedies used, and doses, with their seeming effect. 8. The issue of the case, and when death occurred. 9. The investigations made to exclude the presence of disease other than so-called hydrophobia. 10. The findings on autopsy—if one was held.

I shall, of course, acknowledge in future publications aid received in continuing my studies in regard to this subject.

Yours respectfully,

CHARLES W. DULLES.

4101 WALNUT STREET, PHILADELPHIA.

NEWS ITEMS.

Death of Helmholtz.—The distinguished physicist Professor Hermann von Helmholtz, of Berlin, died on September 8th, at the age of seventy-three. Professor Helmholtz was born August 31, 1821, at Potsdam, and received the degree of M.D. in 1842. In 1847 he read the epoch-making paper on "The Conservation of Force," before the Physical Society of Berlin, at which time he was not aware that Mayer, in 1842, had first advocated essentially the same truth. In 1849 he was appointed Extraordinary Professor of Physiology at Königsberg, and in 1855 he became Professor of Physiology at Bonn, and in 1858 he was called to Heidelberg. In 1871 he was made Professor of Physics in the University of Berlin. In 1891 he was made President and Director of the Physikalisch-Technische Reichsanstalt. The scientific work of this great man was, much of it, connected with medicine, so that physicians are well aware how great is the debt we owe him. Ophthalmologists especially can never forget the inventor of the ophthalmoscope and the writer of the *Manual of Physiological Optics*. There is no department of medical science that, directly or indirectly, was not enriched by the long life of noble labor of this brilliant and masterly mind.

A New Surgical Work.—*A System of Surgery*, edited by Frederic S. Dennis, M.D., and John S. Billings, M.D., is announced by Lea Brothers & Co. as shortly to appear, in three imperial octavo volumes. The list of contributors embraces such names as W. T. Bull, Charles McBurney, and Robert F. Weir, of New York; Councilman, Porter, Richardson, and Warren, of Harvard; Carmalt, of Yale; Keen, White, Roberts, and Wharton, of Philadelphia; Welch, of Baltimore; Park, of Buffalo; Conner, of Cincinnati; Mudd, of St. Louis; and Senn, of Chicago.

Prof. Rollett, of Lyons, Professor of Hygiene, and a well-known syphilographer, died August 2d, at the age sixty-nine years. He contributed freely to the literature of venereal diseases.

A. B. Miles, Professor of Surgery in Tulane University, New Orleans, died August 5th, at the age of forty-one years.

A Statue to Claude Bernard will be unveiled at Lyons on October 26th.

BOOKS AND PAMPHLETS RECEIVED.

Manhattan Eye and Ear Hospital Reports. No. 1. New York, 1894.

The Southern Surgical and Gynecological Association: Its Origin, Objects, and Aims. The Annual Address of the President. By Bedford Brown, M.D. Reprinted from the Transactions, 1893.

De l'Extraction des Osselets dans l'Otorrhée. Dr. E. J. Moure. Paris-Bordeaux: O. Doin et Ferret et Fils, Editeurs, 1894.

A Manual of Nursing in Pelvic Surgery. By Lewis S. McMurtry, A.M., M.D. Louisville: John P. Morton & Co, 1894.

The Truth About Homeopathy. By Dr. Wm. H. Holcombe. A Posthumous Manuscript. Also a Sketch of the Life of Dr. Holcombe. Philadelphia: Boericke & Tafel, 1894.

Salines in Appendicitis. By S. C. Gordon, M.D. Reprinted from the Boston Medical and Surgical Journal, 1893.

Recurrent Appendicitis. Six Operations with Six Recoveries. Treatment for Acute Attack in Five Cases. By S. C. Gordon, M.D. Reprinted from the Boston Medical and Surgical Journal, 1893.

Report on Tuberculosis in Ontario. Presented to the Provincial Board of Health, and Adopted with Recommendations therein Contained. By P. H. Bryce, A.M., M.D., Secretary. Toronto: Warwick Bros. & Rutter, Printers, 1894.

Ueber die antiseptische Kraft des Ichthyols. Von Dr. Rudolf Abel. Abdruck aus dem Centralblatt für Bakteriologie und Parasitenkunde, 1893.

L'Ictiolo nella Cura della Blennorragia. Per il Dott. Pio Colombini. Siena: Tip. Edit. S. Bernardino, 1893.

The Insurance Dfrectory, Rcierenee, and Year-book. London: T. J. W. Buckley, 1894.

Transactions of the Medical Association of the State of Alabama. The State Board of Health. Montgomery: Brown Printing Co., 1892.

Hospitals, Dispensaries, and Nursing. Papers and Discussions in the International Congress of Charities, Correction, and Philanthropy, Section III, Chicago, June 12 to 17, 1893. Edited by John S. Billings, M.D., and Henry M. Hurd, M.D. Baltimore: The Johns Hopkins Press. London: The Scientific Press, Limited, 1894.

Therapeutic Reflections. A Plea for Physiological Remedies. By Simon Baruch, M.D. Reprinted from the Journal of Balneology, 1893.

The Operative Treatment of Complete Prolapsus Uteri et Vaginæ. By George M. Edebohls, A.M., M.D. Reprinted from the American Journal of Obstetrics, 1893.

Treatment for Depressions in the Skull of the Newborn. By David J. Jennings, M.D. Reprinted from the Surgical Record, 1894.

An Act to Regulate the Practice of Medicine and to Create a State Board of Examiners in Louisiana. Monroe: Telegraph-Bulletin Print, 1894.

The Treatment of Internal Squint. By Howard F. Hansell, M.D. Reprinted from the Annals of Ophthalmology and Otology, 1894.

Indirect Massage of the Lens for the Artificial Ripening of Cataract. By Edward Jackson, A.M., M.D. Reprinted from the New York Medical Journal, 1893.

The Relief of Pain in the Eyes. By Edward Jackson, A.M., M.D. Reprinted from the Therapeutic Gazette, 1893.

Achievements of Sanitation Measured by Vital Statistics. By George E. Willits. Reprinted from the Proceedings of the Sanitary Convention held at Hillsdale, Mich., July, 1893, and published as a Supplement to the Annual Report of the Michigan State Board of Health for the Year 1893.

A Manual of Therapeutics. By A. A. Stevens, A.M., M.D. Philadelphia: W. B. Saunders, 1894.

Twelfth Annual Report of the Children's Aid Society of Pennsylvania, 1893.

In Memoriam: John M. Keating, M.D. By Judson Daland, M.D. Reprinted from International Clinics, 1894.